

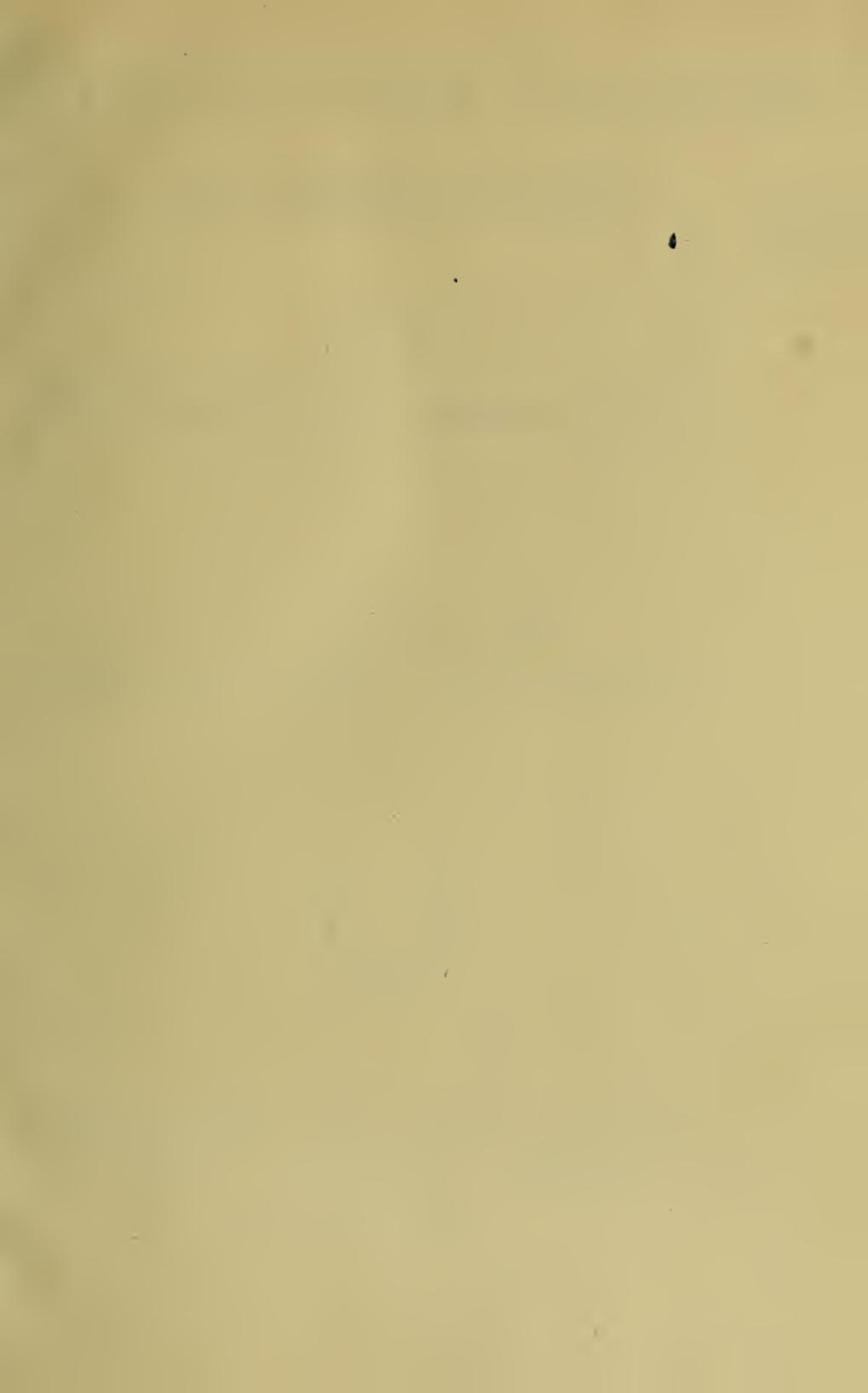


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PSYCHOLOGY FOR TEACHERS

WITH SUGGESTIONS ON METHOD

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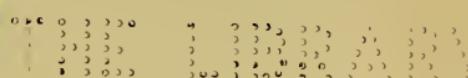
FOR USE

IN HIGH SCHOOLS AND TEACHERS' INSTITUTES

BY

J. N. PATRICK, A. M.

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"Light on the Road."



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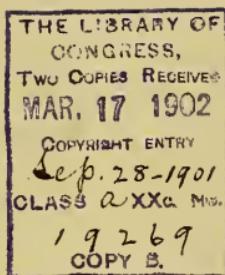
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PREFACE

Only the essential truths of Psychology are treated in this manual. An effort has been made to present the fundamental truths of mental science in simple and concise language, and to illustrate their use in the practical work of the schoolroom. Psychology considered as a science, the object of profound research, is one thing; psychology as an educational instrument—psychology for teachers—is quite another thing. With the knotty details of the science the teacher in high schools has absolutely nothing to do.

Too many of the elementary text-books on this subject are very abstract, and wanting in illustrative matter that can be understood by the young teacher and the average high school pupil. No apology is needed for repeated efforts to impress important truths upon the teacher or for repeating in different phrases the central truths of the science. As sound methods of instruction are based upon the laws which govern the acquisition of knowledge, suggestions on method are presented in connection with the treatment of the most important subjects.

The work is presented to the educational public in the belief that it is a clearer and simpler statement of the principles or laws which govern mental development than is found in the elementary texts now before the public. The book, however, is not a series of baby-talks on psychology and method. The presentation of a subject which requires no thinking on the part of the reader is worthless for educational purposes. As often as the limits of the book would permit, the writer has quoted from psychologists and educators to reinforce his convictions.

Little claim is made to original ideas. If there is anything original in the treatment of the subject, the originality consists in stating in the simplest language what others have stated in terms which must be translated before they can be understood or applied by the average teacher or layman. An effort has been made to hold the discussion close to the title of the book—**PSYCHOLOGY FOR TEACHERS.**

It is a pleasure to acknowledge indebtedness to the works of Sully, James, Ladd, Dewey, Davis, and the new English work, *Psychology in the Schoolroom*. Without the help of these texts this unpretentious little volume could not have been written.

J. N. P.

St. Louis, Mo., 1902.

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"MAKE THE PUPILS THINK"

"For the purpose of testing the quality of gold alloy, jewelers formerly used a fine-grained dark stone called the touchstone. In the eyes of an educator good instruction is more precious than pure gold. The touchstone by which he tests the quality of instruction, so as to distinguish genuine teaching from its counterfeit, rote teaching, is thinking. The schoolmaster who teaches by rote is satisfied if the pupils repeat his words or those of the book; the true teacher sees to it that the pupils think the thoughts which the words convey.

"The school makes possible the higher life when it teaches the pupil to think. Right thinking puts intelligence into the labor of his hands, increases his earning power, lays the foundation for his physical being, and lifts him above an existence that is a mere struggle for bread. It promotes the higher life by teaching him to think God's thoughts, as enshrined in all his works, and the best thoughts of the best men, as embodied in literature and the humanities. It fits the pupil for complete living by developing in him the power to appreciate the beautiful in nature and art, power to think the true and to will the good, power to live the life of thought, faith, hope, and love."

NATHAN C. SCHAEFFER, LL.D.

PSYCHOLOGY FOR TEACHERS

CHAPTER I INTRODUCTORY TOPICS

We all talk about mind in a familiar way, for every one has a mind. Every one believes that he has something within him that knows, and feels, and wills. This something is called *mind*. The science which examines and deals with the workings of mind is called *mental science* or *psychology*. As consciousness is the general name for all possible mental operations, it is important to know at the outset what is meant by the term. A careful study of the following illustrations will help the student to understand what is meant by *consciousness*.

Falling to sleep and awakening from sleep illustrate forms and states of consciousness. As one sinks gradually to sleep he becomes less and less conscious; as he awakens gradually from sleep he becomes more and more conscious. When a man receives a severe blow on the head he becomes unconscious. When he comes to his senses again he simply comes to con-

sciousness. That, in the mental life of man, which rises and falls is *consciousness*. Attention, perception, memory, imagination, feeling, and willing are forms of consciousness. Attending to anything, perceiving anything, remembering anything are mental activities or states of consciousness.

“Consciousness,” says Ribot, “is the word which expresses in the most general way the various manifestations of psychological life. It consists of a continuous current of sensations, ideas, volitions, and feelings.” Consciousness is the distinguishing characteristic of mind; hence a clear idea of what is meant by the term is very important.

The facts of consciousness differ from other facts in one important particular. They are *individual* facts. They exist only for the one who experiences them. A fact of arithmetic or physiology exists for every one who wishes to study it. The facts of other sciences are *universal* facts—facts which lie open to the observation of all, objective facts. The facts of psychology, or the phenomena of mental states, are facts of *my* mind or of *your* mind, and are known only to *me* or to *you*. These mental states are subjective facts, known to the *self* by looking inward.

Little progress will be made in this study until the difference between subjective and objective facts is clearly perceived. It is one thing to learn about a

fact theoretically, and quite another thing to feel that you know it, and that you can practically apply it. It is the application of a principle that yields inspiration, purpose, and knowledge. The definitions and illustrations given in this chapter must be mastered by the pupil or the subsequent chapters will have little or no meaning. The fundamental facts of psychology are as demonstrable to the *self* as the facts of geometry are to others. Memory, attention, and will are facts as truly as weight, light, and electricity. As the growth of all minds is governed by the same general laws, the teacher that knows how his own mind acquires knowledge is better qualified to aid others in acquiring knowledge than one who is totally ignorant of those laws.

From the foregoing statements psychology may be defined as follows: 1. "Psychology is the description and explanation of states of consciousness as such." 2. "By states of consciousness are meant such things as sensations, desires, emotions, volitions, and the like." 3. Psychology is the scientific study of mental operations.

Mind—Body.—As yet we do not know what mind is or its precise connection with the body, but we do know how it acts and in some measure its influence over the body. Whatever may be the nature of mind we know that it has a close connection with the

body, and that it depends on the nervous system for the material on which it works, and which in a mysterious way it converts into thought. Marvelous as are the mind's achievements, it as dependent on the nervous system as the plant is on the sun. Ample proof of the dependence of the mind on the nervous system for the raw materials of knowledge is readily furnished. Mental images and general notions are derived from the material furnished by the senses. The child born blind can never acquire the images or the notions formed through the sense of sight. The child born deaf can never acquire the percept *sound*, and so on.

Up to the present time our physicians have studied the anatomy and physiology of the brain, but they have sadly neglected to study its functions. The chief function of the brain is to receive, associate, and retain impressions received through the senses, and to reproduce them when called on. The brain is the guardian and the servant of the mind. Thoughts are formed by associated suggestions, but they are dependent on the brain for their retention, and are unable to take form in expression without the assistance of the brain. Through the mind the function of every organ of the body may be assisted or retarded. It is through the action of the mind on the body that many diseases are produced, and many are cured.

As before stated, we receive impressions through the senses. These impressions may unconsciously interfere with or assist bodily functions. A disgusting sight may instantly destroy a ravenous appetite. The sight of a delicacy may cause the saliva to flow. Through the sense of hearing news may be received which will depress and produce shock, cause worry, grief, and nervousness. Any of these conditions will destroy an appetite and retard digestion or produce vomiting. Good news, inspiring music, bright stories, cheerful voices will remove depression, assist digestion, and create an appetite. Some odors call up unpleasant memories which produce depressing lines of thought, while others again may be obnoxious enough to nauseate or destroy an appetite.

Mind—Matter.—We do not know the nature of mind; we define it by its properties or powers. Mind is that which *knows, feels, and wills*. Thinking, feeling, and willing are not physical phenomena, *i. e.*, phenomena of matter. It is not the body that thinks, feels, and wills. If mind is not matter it is spirit. If mind is not matter it is a simple, indivisible unit of energy. If mind is not matter and is indivisible it cannot lose its identity. Mind is not matter, for we know that the properties of mind and the properties of matter are essentially different. There is an absolute contradiction between the attributes

of matter and the attributes of mind. Matter is changeable, and is ever renewing itself; mind is unchangeable and identical. Matter occupies space; mind does not. Matter is something outside of us; it is *objective*. Mind is something within us; it is *subjective*. Mind has reference to the ego, to the self. Matter has reference to the non-ego, to the non-self. In studying mind we must not forget that there is something back of all phenomena still unknown and probably unknowable. We really know nothing of the nature of mind or matter; but we know that consciousness is a characteristic of mind, and that extension is a characteristic of matter. Here our knowledge ends.

The internal world is affected by the objects of the external world and perceives them. All that is apprehended through the senses is of the external world, and is classed as matter. Bain says: "There are two widely different phenomena: one, consciousness or mind; the other, matter or material order; both are intimately connected. We must study the being of each in its own manner to recognize the general laws of their union, and to follow them to the explanation of separate facts. The mind is destined to be a double study, to unite the philosopher with the naturalist."

Mind.—The word *mind* is here used in the sense in

which the word *soul* is used by some writers. The mind is the knowing, feeling, and willing part of us. More exactly, mind is that which manifests in our processes of knowing, feeling, and willing. We can study the phenomena of mind, but not its nature. The mind *is*, and it knows that it is. The mind *knows*, and it is conscious that it knows. The mind *feels*, and it is conscious that it feels. The mind *wills*, and it is conscious that it wills. The terms *soul*, *spirit*, *ego*, *self*, and *subject* are sometimes used as synonymous with mind.

Mental activity is based on the results of sense-perception with which it starts. That is, knowledge takes its rise in the senses. All agree that no mental life is possible until by means of the nervous system sensations are brought to the brain. All forms of mental life depend on the stimulation of the nervous system. It is true that mental life presupposes more than a use of the senses, but mental life starts with the material furnished by the senses. As mental facts cannot be properly studied apart from the physical environment of which they take cognizance, we will briefly describe the nervous system.

The Nervous System.—The instrument by which the mind communicates with the external world is the nervous system. The elements of the nervous system are nerve-fibers and nerve-cells.

Nerve-Fibers.—A nerve-fiber consists of a thin, outer membrane, a white, semi-liquid sheath, and a translucent cylinder. The nerve-fibers constitute the white-matter of the nervous system. Nerve-fibers serve as lines of connection, uniting nerve-centers and communicating with the sense-organs. Nerve-fibers do not create; they only transmit. There are two classes of nerve-fibers, the sensory or afferent, and the motor or efferent. The sensory or afferent nerves carry impressions from the sense-organs to nerve centers. Each afferent nerve comes from a different part of the body, and is excited to its inward activity by a particular force in the outside world. The motor or efferent nerves carry motor impulses to the muscles. Nerves are arranged in pairs and traverse every portion of the body, one nerve of each pair carrying the raw material of knowledge to the brain, the other carrying orders from the brain to the surface of the body.

A simple illustration will show how the nerves serve as messengers in carrying messages to and from the brain. By touching a burning coal with your finger you will set in motion a highly interesting process. The burning coal will irritate the end of a sense-organ, and the irritation, in the form of a vibration, will be carried along a sensory nerve to a nerve-cell in the brain, where, in some mysterious

way, it is transformed into a sensation. The mind will seize and interpret this sensation and will immediately send a message to the finger tip by a motor nerve, the companion of the sensory nerve, telling the finger to move away from the hot coal.

Nerve-Cells.—A nerve-cell is a granular body with a minute nucleus containing nuclei.

CENTRAL NERVOUS SYSTEM.

The Brain.—The brain is situated within the cavity of the skull. The front part of the brain is called the *cerebrum*. The back part of the brain is called the *cerebellum*. The brain, being the seat of the mind, is the dominant organ of the body. The part of the body most intimately connected with the mind is the brain. The brain is the chief part of the nervous system. It influences every muscle and nerve and even the mind itself. A healthy, vigorous brain is a condition of vigorous thinking. The anatomy of the brain is intricate, and the functions of its members are obscure. Mind is a mystery. The *thinking* man is the greatest triumph of the Creative Power.

The Cerebrum.—The cerebrum, or large brain, is the supreme nerve center. It is situated in the upper portion of the skull, and is divided into two parts. The cerebrum is the seat and the immediate organ of the mind. Impressions from the external world, act-

ing through the afferent nerve fibers and causing disturbances in the nerve-cells of the cortex, in some way affect the mind. The mind through the cerebrum has control of the voluntary movements of the body.

The Cerebellum.—The cerebellum, or little brain, is situated beneath the posterior part of the cerebrum. The cerebellum regulates muscular movements, receives, and carries out the behests of the cerebrum.

The Spinal Cord.—The spinal cord extends downward from the base of the skull. It is composed of a gray axis, consisting of fused ganglia and connecting nerve-fibers and cords. It acts as a conductor to and from the brain. It is enclosed within the spinal column for protection, and is made of nerve-cells, coated with nerve fibers. It is used as the main channel of communication between the brain and the extremities of the body. Thirty-one pairs of nerves branch off from the spinal cord and form a complete telegraphic or telephonic system, connecting the brain with every part of the body.

Medulla Oblongata.—The upper end of the spinal cord is enlarged and called the medulla oblongata. It acts as a conductor between the spinal cord and the cerebellum and cerebrum.

The functions of the different parts of the body are performed through the influence of the nerves. The nerves pass from centers in the brain and the

spinal cord to the bones, the joints, the muscles, and the heart. As the sense-organs are fully described in the common school text-books on anatomy, we will mention only the points which most directly concern the student of mental science or psychology.

SENSE AND SENSE-ORGAN.

Sense.—Sense is a power of the soul to know a particular external impression.

Sense-Organ.—A sense-organ is the part of the terminal apparatus of the nervous organism that furnishes the soul with impressions in the act of perception.

The special senses are five in number: *sight, hearing, touch, smell, taste*. They are called special senses, for each has a special sense-organ which furnishes the elements of perception.

Sight.—The organ of the sense of sight is the eye-ball. The eye-ball is a *camera obscura*, having in front a combination of lenses which bring pencils of light to foci on the retina, lining the interior. The image of the object seen is thrown upon the retina of the eye. There are two inverted images, one in each eye. The primary percept of the sense of sight is *color*. Seeing is a special sense-perception; color is its primary object, the thing perceived. Besides color the sense of sight perceives extension.

Hearing.—The organ of the sense of hearing is the ear, a very complex organ. The percept of the sense of hearing is *sound*. Hearing is a specific sense-perception; *sound* is the thing perceived. The ear consists of three parts: the *external ear*, or auditory canal, which collects the sound waves; the *middle ear*, or *tympanum*; and the *internal ear*. Sensations of sound are very numerous and are attended with perceptions of position and distance. Sensations of sound are the bases of music and articulate speech. The sense of hearing ranks high as an intellectual or knowledge-giving sense.

Touch.—The organ of the sense of touch is the skin. The skin consists of a superficial layer, the epidermis, and a subjacent layer, the dermis, in which capillary nerves terminate. The percept of the sense of touch is physical solidity or impenetrability, one of the defining qualities of a body. The action of touch is one of pressure. Pressure sets up vibrations in the touch corpuscles (touch corpuscles are the end organs of the afferent or incarrying nerves), and the nerve filaments convey the vibrations to the brain, where they are received and interpreted as sensations of touch. Through the skin we get several kinds of sensations: touch proper, heat, cold, and pain. We can with more or less accuracy localize the sensation of touch.

The sense of touch gives us ideas of the softness or hardness of a body; of the elasticity and inertia of a body; of the roughness or smoothness of a body. The hardness or softness of a body can be discovered by running the hand over it, by compressing it, by moulding it, by handling it in various ways. The sense of touch gives rise to several classes of distinguishable sensations. Those of the *gentle touch*, as when a finger is laid softly on a smooth surface; those of *acute pain*, as when a sharp point is touched; those of *temperature*, as when the hand is placed on a hot surface; those of *pressure*, as when a light weight is laid on the surface. All tactile sensations are referred to the surface of the body. It is thus clear that the sense of touch is a very important "soul-gate." Many believe that touch is the most important of the five special senses.

Smell.—The organ of the sense of smell is the vaulted chamber situated above the nostrils between the eyes. The mucus membrane, lining this cavity, is supplied with a great number of olfactory nerves for the reception of odorous particles. The percept of the sense of smell is an *odor*. The sensations of smell are localized in the nose and referred to its interior surface. Substances possessing odors give off minute vibrating particles. These particles touch the olfactory cells connected with the nerve endings and

stimulate them. These stimulations are conveyed by the olfactory nerves to the brain and there interpreted as sensations of *smell*. The sense of smell gives the existence of a body only one quality, *odor*. It does not give body extension or place, nor does it localize it in the same definite way that the higher senses do.

Taste.—The organs of the sense of taste are the tongue and the palate. The mucus membranes which cover these organs are filled with nervous filaments. The percept of the sense of taste is *savor*. The excitant of taste is sapid matter dissolved in the moisture of the mucus membrane. If the matter is not soluble, the sensation of taste cannot be excited. The particles of the substance to be tasted must come into contact with the gustatory cells or the sensation of taste cannot be felt. The dissolved matter must stimulate the nerve endings; the stimulation is then carried to the brain, where it is interpreted as a sensation of *taste*.

Taste—Smell.—Taste and smell are regarded as the inferior senses. That is, they are relatively of less importance than *sight*, *hearing*, and *touch*. *Taste* and *smell* are directly connected with the organic sensations; *sight*, *hearing*, and *touch*, with intellectual operations. The sensations which taste and smell supply are wanting in definiteness. Taste

is often confused with smell. The sensations are variable, sometimes strong, sometimes weak. They are very limited in their use, for only a comparatively few objects are capable of being tasted or smelt. These sensations are not easily recalled. The child who cannot see, hear, and feel has but a limited stock of perceptions.

Muscular Sense.—A muscular sense is a sense which immediately accompanies the action of the muscles. The sense organ is a muscle. A muscular sense consists of the sum of simple, mental states which accompany the action of the muscles.

The foregoing brief survey of the five special senses shows that each sense contributes but one kind of raw material to the mental stock, and that each contribution is intended for man's use and enjoyment. It also shows that the loss of any one of the senses would materially lessen a person's capacity for enjoyment in life; that the loss of any two of them would rob life of half its charms.

Knowledge Obtained by the Senses.—That we may know what knowledge is furnished by each of the special senses in a given case we will apply the sense-organs to an orange. By the sense of *sight* we perceive a colored extension. By the sense of *hearing* we obtain various sounds as the orange is struck or allowed to fall from different heights. By the

sense of *touch* we know the orange to possess resistance, which we name hardness or softness; surface, as rough or smooth; extension, which by handling we learn is spherical. By the sense of *smell* we obtain a pleasant and pungent odor. By the sense of *taste* we obtain the flavor.

IMPORTANT DEFINITIONS AND ILLUSTRATIONS.

Psychology, like the objective sciences, must be studied in its own, special language. The student must know what the special terms mean and be able to give content to them. The following important definitions should be committed to memory and illustrated by the pupil. The illustrations should be studied, and original illustrations substituted for those in the text. It is the teacher's duty to know that his pupils understand what they have learned. Mental training means intellectual life; memory cramming means intellectual death.

Self.—Self is a term used to denote mind, or soul, or spirit, the ego.

Psychic.—The adjectives *psychic* and *psychical* pertain to mind or soul.

Intellect.—Intellect is the soul's power to know.

Sensibility.—Sensibility is the soul's power to feel. Under feeling is included all pleasurable and painful conditions of the mind.

Will.—Will is the soul's power to choose, to direct the *self*. Willing covers all mental operations, all the doings of the self. These three powers constitute the mind. It is important to keep constantly in view the fact that mind is an indivisible unit of energy; that it acts as one. Its modes of action are clearly distinguishable, but wholly inseparable one from another. As intellect mind *knows*; as sensibility it *feels*; as will it *acts*. These three elementary powers are involved in every conscious act. They are not three different forms of consciousness, but three different modes of the same consciousness.

Faculty.—Faculty is a natural power of the mind by which it acts uniformly and with facility in some specific way. Psychology recognizes certain species of knowing, feeling, and willing under the head of faculties, capabilities, or powers. We speak of intellectual faculties, such as *perception*, *imagination*; emotional capacities, as *love*, *anger*. Faculty is a power of the mind to change. Capacity is a power of the mind to be changed. Faculty is a power to impart. Capacity is a power to receive. The faculties are active; the capacities, passive.

Knowing, feeling, and willing are not different parts of mind, but different phases of the same mind. That is, knowing, feeling, and willing are the properties of an indivisible unit of energy, of an in-

divisible trinity, called mind. These three properties cannot be isolated from mind nor from one another. Since it is easier to reason about one thing at a time than to reason about three things, we shall speak of knowing, feeling, and willing as though they were three distinct states of consciousness. In every conscious mental act each phase of consciousness is in a struggle for the mastery. When one solves a problem intellect is master; when one is sorry feeling as emotion is master; when one acts will is master.

While knowing, feeling, and willing are broadly marked off from one another and are opposed to one another, they are in a way closely connected. Mind is not a material object which can be separated into distinct parts, but an organic unity made up of parts, standing in the closest relation of interdependence. Or to put it in another way, knowing, feeling, and willing are properties of mind, and cannot exist in perfect isolation from one another any more than the color, the form, and the size of a plant can exist alone.

Simple illustrations will show that the three elements of soul-life are inseparably connected, and that one state of consciousness grows out of and into another. “A boy falls down and hurts himself.” I look at the wound and see that it should be bound up (*knowing*); I feel sorry for him (*feeling*); I proceed to bind the wound (*willing*). I hear that a friend

has passed a difficult examination (*knowing*); I rejoice at his success (*feeling*); I send him a congratulatory telegram (*willing*).

Knowledge.—Knowledge is the soul's certitude of objects presented to it through the senses. Thus, I take an apple in my hand, and know that I have it, and that it differs from other surrounding objects. Knowledge is presentative or representative.

Presentative Knowledge.—Presentative knowledge is knowledge acquired through the senses, knowledge that is presented immediately to the soul when it attends to what is within it or about it. Thus, the soul's presentative knowledge of an apple is obtained through the five senses. The soul's knowledge of sound is obtained through the ear; of sight, through the eye; of taste, through the tongue. It follows that knowledge will be trustworthy or broad and deep only when the senses are strong and active.

Representative Knowledge.—Representative knowledge is knowledge brought before the mind in the form of images or notions. “Representative knowledge is knowledge of objects, qualities, or relations, not actually present to the senses, but represented by ideas.” Representative objects are mental objects. I saw my son yesterday as an external object present to the senses—presentative knowledge. I see him now as a mental picture—representative knowledge.

As representative knowledge is presentative knowledge revived, it follows that the revived objects are less vivid than the original ones. The image of my son's face is not as vivid as the percept. Representative objects are never complete in detail. Why not? Any experience of the soul may live again in memory as representative knowledge. Why is this so?

Representation.—“Representation is the act of reproducing a percept or any former conscious experience in the form of an image or representative idea.” Knowledge, acquired through the senses, would be practically valueless if it could not be retained and reproduced at will. The presentative faculties would be quite useless if they could not be supplemented by the representative faculties. Perception would mean almost nothing if the percept could not be recalled as an image by memory. If things left no impression the mind would never accumulate a stock of impressions to work on. If an impression acquired through the senses could not again be re-presented by an image or an idea, one would not be wiser at twenty than he was at birth. The point of direct value to the teacher in this matter is this: the character of representative knowledge depends on the completeness of the presentative knowledge, on the clearness of the perception. Apply this fact in the schoolroom.

Consciousness.—“Consciousness is the soul’s immediate knowledge of whatever takes place in any part of our being.” This is the power of the mind by which it knows its own acts and states. “Consciousness is that indefinable characteristic of mental states that causes us to be aware of them.” The immediate condition of a state of consciousness is an activity of some sort in the cerebral hemispheres.

NOTE.—Part of an ordinary definition consists in showing that the thing defined belongs to some larger class. But consciousness cannot be defined in this way, because there is no more general term under which it may be brought. The term consciousness must not be confused with *conscientiousness*—a word having reference to the *conscience*, and not directly to conscious life.

Self-Consciousness.—Self-consciousness is the soul’s knowledge of itself. In every act of knowledge there are three elements: the knowing subject, the self; the object of knowledge, the thing known; and the state of the soul as affected by the object of knowledge. Self-consciousness is the foundation of all knowledge, because the soul’s testimony to its own experiences is the only evidence of their reality.

I—Me.—Prof. James says: “Whatever I may be thinking of, I am always more or less aware of myself, of my personal existence.” In this simple statement of a psychological fact, it is clear that the total *self* is a duplex being, that it is both the *knower* and the *known*. That is, the self is both *I* and *me*. The

self as knowing is *I*; the self as known is *me*. The pronoun “*I*,” used to indicate the conscious *self*, is a late acquisition in the psychical experience of a child. Tennyson very beautifully expresses the truth on this point:

“The baby, new to earth and sky,
 What time his tender palm is pressed
 Against the circle of the breast
Has never thought that this is *I*.

“But as he grows, he gathers much,
 And learns the use of ‘*I*’ and ‘*me*’,
 And finds I am not what I see,
 And other than the things I touch;

“So rounds he to a separate mind,
 From whence clear memory may begin,
 And thro’ the frame that binds him in,
 His isolation grows defined.”

Field of Consciousness.—The field of consciousness includes the part of consciousness on which the attention is directly fixed, also the margin of consciousness. (Teacher will illustrate.)

Margin of Consciousness.—The margin of consciousness occupies all that part of the field of consciousness not occupied by the special object of interest. (The teacher will illustrate. The class will also explain the definition.)

Focus of Consciousness.—The focus of consciousness covers only that part of the field of consciousness which contains the object of special interest.

To focus means to adjust, to bring to a point, to concentrate. (The teacher will give one example to illustrate this definition; the class will give another.)

Nature of the Study.—As mind is that which knows, feels, and wills, the method of studying its acts and states necessarily differs from the method employed in studying the objective sciences. To study mind is to look inward on its acts and states. To study the objective sciences is to look outward through the senses. Mind is subjective; all else is objective. Psychology deals only with subjective facts; hence the senses cannot be employed in observing and in studying these facts. Only by looking inward on the *self* can the student of mental phenomena know that the statements of psychologists are true.

Introspection.—Introspection is a looking inward on the *self* and observing its actions and states. (Teacher will illustrate.)

Subjective—Objective.—The mind's attitude is subjective when it introspects, when its mental gaze is turned inward on the *self*. The mind's attitude is objective when it is looking at things in the outer world. The subject in psychology is that which experiences; the object is that which is experienced. Mental objects are formed by the mind. The image of my friend's face is as distinct to the mind's eye

when both physical eyes are closed as it is when they are both open.

“My eyes make pictures, when they are shut:
I see a fountain, large and fair,
A willow and a ruined hut.”

By subjective is meant anything belonging to or existing only in the mind; by objective is meant anything else. The student of psychology examines his own states of consciousness in a series of “self-studies” or “subject-lessons.” The student of physiology examines the human body through the senses. Subject-lessons give a direct knowledge of the mind world. Object-lessons give a direct knowledge of the material world.

Mental Growth.—Mental growth means an increase in the stock of mental materials. (The teacher will illustrate what is meant by mental material.)

Mental Development.—Mental development means the elaboration of mental material into complex forms. Sensation and perception supply the material; memory, imagination, judgment, and reason use the material in mental development. (Teacher will illustrate this fact.)

Mental development is a gradual growth, an evolution. Step by step mental operations become more and more complex. Sensation, the beginning of mental life or the process of receiving external im-

pressions by the mind, is followed by *perception*, which is more complex than sensation; perception groups together a number of impressions under the form of a *percept*. Perception is followed by *memory*, which is more complex than perception; in memory the mind pictures or has images of what was perceived. Memory is followed by *conception*, which is more complex than memory; conception forms concepts or general notions out of a number of mental images. Conception is followed by *judgment*, which is more complex than conception; judgment compares concepts. Judgment is followed by *reasoning*, which is more complex than judgment; reasoning compares judgments. The mind in attaining knowledge passes from the simple to the complex, from raw material to *thinking*, by a series of successive and dependent processes.

It is clear that there is a well-marked order in the development of intellect, and that there is a well-marked relation of dependence between the several steps or stages of development. In no other subject is it more important to understand the dependence which exists between the successive steps. This elementary fact the teacher will emphasize by giving many illustrations that show the dependence which exists between the several steps of mental development. Step by step he will see that the pupil really

knows. He will, therefore, require the pupil to give original illustrations to prove that he knows what is meant by this step or by that step. The pupil's knowledge of a subject cannot be measured by his ability to quote text-book facts. Recitation without ample illustrations by the pupil counts for little.

Life, intellectual, moral, and physical, is a gradual growth. Nature makes no sudden leaps. Man seldom realizes more than his ideal. Neither God nor man gives for the mere asking, but both encourage, reward, and applaud purpose, effort, and patience. If the teacher will apply these universal truths to his work in the school, he will soon see that interest on the part of his pupils depends on their understanding the several dependent steps of mental operations. This general remark on method is equally applicable to all subjects taught in any school. The teacher should recognize the well-established, mental facts: that new truth is appropriated by using the mental stock already acquired; and that the ease and readiness with which new ideas become known and related depend on the clearness and the vigor of the old ideas. This is apperception. Be not afraid.

THE BASES OF PSYCHICAL LIFE.

The development of mind is possible, because mind has certain capacities which are the stimuli to self-

activity. We will briefly notice *interest*, *impulse*, and *instinct*.

Interest.—“ Interest is the name given to the pleasurable or painful feelings which are evoked by an idea, and which gave that idea the power of arousing and holding the attention.” Without interest it is impossible to secure the voluntary attention of pupils; hence it is a most important factor in the acquisition of knowledge. “ Whatever does not interest the mind, that the mind is indifferent to; and whatever it is indifferent to is to that mind as if it had no existence.”

Interest is of two kinds, natural and acquired. Interest is strictly egoistic or selfish in its direction and tendency, and is a general characteristic of the craving desires and appetites. Natural interest is the interest which the presentation of the object has in itself. The attention which we give to loud noises, bright colors, unusual styles of dress, arises from natural interest. Acquired interest is the interest which the presented object acquires on account of its associations. The attention the biologist displays in dissecting a rabbit is maintained by acquired interest. Acquired interest is interest controlled by the will.

Importance of Interest.—The importance of interest as a factor in the basis of psychical life is found in the fact that it is the means by which the

mind is drawn to any subject as well as the means by which it is lead to exercise itself on it. That is, interest is the mother of attention, and there is no intellectual gain without attention. Teaching implies the power to interest pupils, to secure and retain their attention. An abiding and profitable interest cannot be secured or retained by force of any kind. The teacher cannot interest pupils in a subject by threats of punishment or by bellowing at them or by offering rewards. A permanent interest cannot be aroused by resorting to the tricks of the untrained or the unskillful teacher.

Impulse.—Impulse may be defined as “Those innate promptings of activity in which there is no clear representation of a pleasure, and consequently no distinct desire;” or as “Those activities which arise from some feeling of want, and which, guided by interest in the satisfaction of that want, lead to some physical change.” Impulse is a sudden or transient mental motive or feeling. It is the basis of will, but is not will. It must be regulated before it becomes a true act of will. An illustration will make the definition of impulse clear. Take the impulse for food. How does this impulse arise? It arises from the organic feeling *hunger*. Hunger is a feeling of lack and a desire for something to satisfy this lack. Impulse in this case manifests itself in the physical

movements required to supply the lack, to satisfy the appetite. Appetite is a term used to denote the recurring wants of the animal system.

Instinct.—Instinct may be defined as a natural impulse or propensity, especially in the lower animals, that incites them to the actions that are essential to their existence and development. Instincts are involuntary and spontaneous. Instinct is an impulse which takes place at once; an impulse that leads to action without a knowledge of a reason for the action. The impulse for food in the infant and in most animals illustrates what is meant by the word *instinct*.

Limitations of Psychology.—It is important to know what psychology can do for the teacher, and it is also important to know what it cannot do. Psychology is a science, and as a science deals with classes; teaching is an art, and as an art deals with individuals. Psychology can give a teacher knowledge of the laws which govern the workings of the mind, but it cannot give him the tact and skill required to apply the principles of teaching to the individual pupil. Psychology cannot fit a man for the schoolroom if the man was not born for the schoolroom. “Adaptation is nature.”

Prof. William James, in his *Talks to Teachers on Psychology*, says: “I say moreover that you make a great, a very great mistake, if you imagine that psy-

chology, being the science of the mind's laws, is something from which you can deduce definite programmes and schemes and methods of instruction for immediate schoolroom use. Psychology is a science; teaching is an art; and sciences never generate arts directly out of themselves. An intermediary, inventive mind must make the application by using its originality. To know psychology, therefore, is absolutely no guarantee that we shall be good teachers. To advance to that result we must have an additional endowment altogether, a happy tact and ingenuity to tell us what definite things to say and do when the pupil is before us."

Psychology is an account of the various ways in which the mind works. Some of those ways constitute the process of acquiring knowledge. It is important, therefore, that the teacher should have clear ideas of the fundamental principles of psychology. In his work of teaching the teacher must appeal to mental processes, for upon them he must build. Teaching that does not rest upon these processes is arbitrary and barren of satisfactory results, or positively harmful. A pupil's psychical processes will go on whether he is taught correctly or incorrectly, or whether he goes to school or not. But if he is directed by wrong methods he will stop short of what he might have become under proper guidance.

It is impossible to reach the true end of education, the harmonious evolution of the intellectual and moral powers, without a practical knowledge of the laws and the processes of intellectual and moral development. This knowledge psychology aims to give. Method finds the place in stimulating the instinctive activities into ever-renewed movement, in keeping them directed in the right line, and by progressing on that line in the simplest, most economical, and most vital way. It rests, therefore, on a knowledge of the activities of the mind and the laws which govern mental operations.

The teacher must interpret the minds of his pupils by the action of his own mind. We learn to understand how our own minds acquire knowledge by introspection and by observing the action of the minds of those around us. One's mind is something more than his own mind. Only a fool in his pride believes that his associates can teach him nothing. Man is great, but men are greater. There is naught existing from which one may not learn something. Wise is he who finds a teacher everywhere and in everything. Wise is he who perceives and feels that the one great thought God is pressing on the world is progress.

Education.—“Education can only develop and unfold; it cannot create anything new.” “Educa-

tion gives man nothing which he could not have developed from within himself." Education may be briefly defined as the harmonious development of our faculties. It begins in the nursery and continues through life. It means something more than information, something more than small intelligence. Man needs education, not merely as a means of livelihood, but as a means of life. "Every person," says Gibbon, "has two educations— one which he receives from others, and one more important, which he gives himself." All that any school or college can do for a pupil is to help him lay the foundation upon which he can build throughout life. The school can lay the foundation only; self-education must erect the structure. Education emancipates; it frees the soul of sensuous environment and carries it into the realm of spiritual truth. A teacher who sees only the business value of education has a very low idea of the aims and ends of life.

With the exception of the little word *only* there is probably no other word more frequently misused than the word *education*. It is often used when either learning or cramming would more properly express the meaning intended. One may be well acquainted with the contents of books, and yet be a person of little education. One may be crammed with book knowledge and still be an uneducated boor.

The most unbearable person I ever knew was a gentleman filled with dates and quotations. He could give hundreds of dates and quotations from great authors, but he could not think. Cramming had paralyzed his mental faculties. He never enjoyed the happiness born of conviction and expression. Education should do two great things in the individual: it should train his senses and train him to think.

Education imparts ideas. Discipline expands and regulates the powers. It is clear, therefore, that the teacher should have at ready command a knowledge of the subject under consideration and a knowledge of the laws of mental development. Lacking in either of these essentials he will fail, for his success largely depends on these two forms of knowledge. Experience alone can give a teacher tact. A superintendent of schools may help a teacher enlarge a gift; he cannot create the gift; he cannot give presence to the passive face, sight to the blind, hearing to the deaf, tact to the incompetent. Experiments prove that it is possible to promote the development of which the pupil is capable. Activities can be quickened, habits improved, and knowledge matured. In this work the teacher must conform to the laws that govern mental development. The teacher can help the pupil enlarge his endowment; he cannot give him anything; knowledge is acquired.

Teaching, An Art.—A teacher may know the laws that govern the growth of mind and the subjects he is called on to teach, and yet be a schoolroom failure. Teaching is an art, requiring tact as well as talent; indeed, in the schoolroom tact is more valuable than talent. Tact is both a gift and an acquisition. Tact on the part of the teacher leads the pupil to set up specific ends and work for their attainment.

“ To teach mankind some truth
So dearly purchased — only then I found
Such teaching was an art requiring cares
And qualities peculiar to itself;
That to possess was one thing — to display
Another.”

Tact is usually suggestive. To know how to suggest is to know how to hold attention. As mental fiber is the product of mental effort, the pupil’s progress depends on what he does himself, not on what the teacher does for him. The aid given pupils should begin where the pupil’s ability to help himself fails. A teacher should never do for a pupil what the pupil by effort and diligence can do for himself. Suggestion is better for the pupil than direct help.

“ Teaching,” says Tompkins, “ is the process by which one mind, from a set purpose, produces the life-unfolding process in another.” A teacher’s secret lies in his power to develop in the minds of his

pupils a condition similar to the one present in his own mind. Teaching is a mental process.

“ We teach and teach,
Until like drumming pedagogues we lose
The thought that what we teach has higher ends
Than being taught and learned.”

Since mind is that in man which knows, feels, and wills, it follows that it is developed and strengthened by what it creates and matures, not by what is crammed into it. No one can become a good teacher without a sound knowledge of mental operations. Conscious knowledge of correct methods is the mother of enthusiasm and tact, and enthusiasm and tact on the part of the teacher begot interest and enthusiasm on the part of the pupil. Instruction stimulates or stupefies; which, depends wholly on the teacher’s knowledge of the subject in hand and his method of presenting it. The value of a pupil’s school opportunity depends on the kind of teacher in charge of the school.

Method.—Compayre says: “ Method is the order we voluntarily introduce into our thoughts, our acts, and our undertakings.” From the foregoing definition it is clear that every one has his own way of doing things. *The* method of teaching a subject depends on the best method of learning that subject. No teacher can prescribe for another. The teacher

who needs more than suggestion needs more than psychology and pedagogy can offer him. No one who consciously apes the methods of others can inspire school children. The enthusiasm which is contagious is not a second-hand product; it is developed within; the product of high ideals, energy, and a definite aim. The universal best method of teaching a subject has not yet been discovered, and it never will be discovered.

The best system of teaching for every one is the system he makes for himself through study, experience, and personal reflection. Certainly no one should be required to learn by heart any one's book of methods, yet such books are far from being valueless to the inexperienced teacher if they stimulate personal reflection. The want of any method is at bottom of many a failure in teaching. It is impossible to develop and train the minds of others without a definite idea of what is to be done, and how it is to be done. With a distinct plan or regular scheme of work one can do more, and do it with less effort, than without a plan.

Whatever method is used in presenting a subject or in hearing a recitation, the teacher's personality is the chief factor in success or failure. Only the teacher's knowledge of the subject, his interest in his work, his enthusiasm, his love for his pupils, can

clothe the dry bones of the best method with real life and worth. The teacher must be the life of any method, yet talk but little. His manner should speak. Pupils are not trained to think or to express themselves by talking teachers. Talking teachers never lead pupils to acquire studious habits, because the method which exacts little or nothing of the pupil is worth little or nothing to him. Passive speech and indifferent bodily action mean little or nothing to school children. To lead pupils to do requires positive speech and action on the part of the teacher. The emphasis of voice and action that accompanies purpose is ever present in the work of the inspiring and successful teacher.

Exact teaching persistently demands the very best effort of the pupil in all he says in the classroom; exact teaching compels the pupil to realize somewhat of himself in every effort to express his thought and feelings. Methodical persistence on the part of the teacher is the only kind of persistence that will establish correct habits of thought and speech on the part of the pupil. The method of the teacher should aid the pupil to form right conceptions of life and to build high ideals. The teacher should lead the pupil to see that high ideals are to realities as cause is to effect; that character depends on ideals. The method of the teacher should lead the pupil to appreciate his

opportunities, to value the pleasures of life, and to acknowledge his obligations and duties to others. The method of the teacher should lead the pupil to see that to become he must overcome; that self-trust is the distinguishing characteristic of the men that succeed in the schoolroom as well as elsewhere.

As the mind has only what it creates, develops, and uses, it follows that the teacher cannot give the pupil anything. What most distinguishes the trained from the untrained teacher is the art of keeping comparatively quiet during the recitation, the art of drawing out of the pupil by direct, concise questions what he knows about his lesson. The art of questioning seems to be one of the lost arts in too many schools. The pupil should be trained from the start to regard the school as a business institution, and the recitation hour as the most important hour of the school day. The recitation should be an experience meeting for both teacher and pupils. The art of education is the art of furnishing the best possible conditions for self-development.

Training—Cramming.—Education is largely a habit, and sound habits of thought are the result of long and careful training. The teacher must first see that cramming is not culture before he is in any true sense an inspirer or instructor. It is how a mental act is performed, not what is performed, that devel-

ops and strengthens the mind. If the method of the teacher compels the pupil to concentrate his mind on his class task, the teacher is helpful to the pupil. If the method of the teacher licenses the pupil to wander and squander his effort, the pupil is not benefited by the teacher's instruction. Mental power is the effect of concentrated mental effort. It is not the mental effort which is required to do a thing that tires men; it is the mental waste.

Effects of Cramming.—Cramming the mind with impressions deadens the mental faculties. It is a well-established physiological fact that over-feeding the stomach weakens its digestive powers and eventually produces dyspepsia. Only when the digestion is equal to the feeding is the body benefited by eating. In like manner, only when the mental food is digested, assimilated with what is already in the mind, is the mind trained and strengthened by new impressions. Mental depression and dyspepsia as surely follow cramming the mind with unclassified, undigested facts as physical depression and dyspepsia follow cramming the stomach with more food than it digests. Digestion, physical and mental, must ever be equal to the supply of food, physical or mental, or congestion is inevitable.

The teacher that unceasingly crams his pupils with individual facts does not in any true sense train

them. Cramming is not training. Training is a drawing out process. Training is drawing out of pupils what they have learned, not what was poured into them by the teacher. Teaching means training or it means little or nothing. The merely formal, superficial, and traditional work of the school does not train a pupil to think, feel, or act. Only to the extent that the method of the teacher stimulates self-activity in the pupil is the teacher helpful. In nearly every case of educational failure the fault is not in the pupil, but in the teacher, in the method, or in both.

Cramming tends to make study distasteful. It is thus opposed to the self-culture which naturally follows rational, mental training. Cramming is a mistake, for it assumes that a memory filled with facts is culture. Cramming is a mistake, for it assumes that learning is everything, and forgets that knowledge must be classified to be helpful. Cramming is a mistake, for it assumes that all pupils are dullards. Cramming is chiefly the effect of telling, and telling is the result of the teacher's stupidity, not of the pupil's. Cramming produces a morbid state of mind and a consequent disgust for knowledge in general. Cramming text-book definitions, rules, and dates into pupils is a mistake, for it weakens the memory. As the memory can recall only what is held in the mind by the laws of association, it follows that the rote

recitation of text-book bric-a-brac is a silly trespass on a pupil's opportunity. It is a well-established fact that what has little or no connection with what is already in the mind cannot be retained, hence cannot be recalled. That is, the rote recitation of one day is forgotten by the next day.

The mere memorizing of forms does not give the pupil power to deal with new problems. A model solution is meaningless to the pupil that does not think. When training is substituted for cramming, model solutions and rules will fill but little space in our textbooks. In practical life one must know he is right; he must be independent of rules and the authority of others. Rules are serviceable only to machine teachers and dull pupils, and to them only for a day. If principles are mastered, rules are not needed. Spencer says: "Rule teaching is now condemned as imparting a merely empirical knowledge—as producing an appearance of understanding without the reality. Between a mind of rules and a mind of principles there exists a difference such as that between a confused heap of materials and the same materials organized into a complete whole with all its parts bound together."

The method of the teacher should aid the pupil to think promptly and correctly. In this way only can the teacher assist the pupil in preparing himself to

meet the demands of life. Memory cramming will not meet the demands of social, professional or business life. No array of facts, no amount of quotations, will inspire pupils. Inspiration and action are born of inspiration and action, not of seeming and dreaming. The method of the teacher should lead the pupil to act well his part in social life and to do his duty as a citizen of the state. The untrained teacher too frequently makes the acquisition of knowledge facts the chief end of school training.

Competency Essential.—Two kinds of knowledge are indispensable to the teacher: the first is a thorough knowledge of the subjects he teaches; the second is a conscious knowledge of the fundamental laws that govern the development of mind. Without ample knowledge of the subject, teaching-tact is impossible. An explanation that pupils cannot understand on account of the teacher's scanty knowledge of the subject and the verbose and slovenly language used discourages pupils. To teach effectively the teacher must know his subject, and must use clear and concise language in explanations and illustrations. Conscious ignorance of the subject dampens the teacher's enthusiasm and weakens the pupil's confidence in the teacher. Without some knowledge of how the mind grows, the teacher must follow traditional methods or guess at how to present the subject

as well as how to approach the pupil. The teacher that is deficient in either of the foregoing essential particulars is a mere recitation hearer. He is a discouraging presence.

Enthusiasm Essential.—An average pupil needs the stimulating influence of an earnest, working teacher; he needs the influence of an aggressive, exacting, sympathetic personality. What an average pupil accomplishes in school depends on what is required of him and by whom it is required. The personality of the teacher is the real power in every schoolroom. The manners of a teacher are communicable. It is the spiritual life, purpose, and habits of the teacher that inspire and determine the spiritual life, purpose, and habits of the pupil. A school may inspire and develop mental and moral power, or it may stupefy and destroy it; which, depends almost wholly on the method of the teacher. Not every one can teach school. Teaching is a spiritual process; the formal recitation is only the visible machinery through which the spiritual is awakened and strengthened.

Every recitation is an opportunity to train pupils for power. Learning is valueless if the learner cannot use it. The mere ability to state facts does not necessarily indicate culture. Culture is the power to think, to reason, to assert, to prove. It is a condition developed by the mind's own activity. Method

should compel the pupil to think. The liberal use of the little word *again* will keep the pupil alert. Do not scold the blunderer, nor use his time in wordy explanations. The less you talk and scold, the more the pupils will think and do. Teaching that does not train a pupil to think is destructive teaching; teaching that does not train a pupil to believe in himself is worthless teaching; teaching that consists chiefly in telling is ignorant teaching.

The teacher's manner is the real influence in the school; his personality is the real teacher. Pupils may laugh at a teacher's opinions, but they cannot resist his personal power. If he is not in earnest the pupils will not be zealous; if he is not enthusiastic he cannot secure and retain the attention of his pupils; he must speak and act in such a manner that the pupils cannot disregard his teaching. Teaching school requires the whole of the largest men and women. Satisfactory results can be secured only in the degree that the teacher throws his whole life into his work. It is through the contagion of his own personal enthusiasm that interest is awakened on the part of the pupils. "A working teacher will always have working pupils; and this the more if they are not overwhelmed with text-books rendered wholly unmanageable for them by sheer excess of details."

The personality of the teacher is the persuasive ele-

ment to which all else is subservient and secondary. Personal influence is greater than authority; it is the teacher's character, not his learning, that inspires and governs. Some men are leaders, not because of what they know, but because of what they are. History clearly shows that the essential factor in human development is the leadership of great men. The power that moves others is personal, not abstract. Everywhere men have always been loyal to leaders rather than to systems and methods. The greatest power in the world is a living personality. We all know the magnetic influence of a strong personality. "*A man* teaching is worth more to a class of pupils than all theories, methods, and devices." Purpose as seen in a teacher's face and bodily habits is communicable. The presence of a teacher is the controlling influence in the government of the school. The true character of a teacher is constantly on exhibition in the school-room. Sham will not pass long for reality. Children detect the counterfeit very soon.

The essence of a good school is in the teacher. It is not in the course of study, nor in the fine school-house, nor in the large library; it is in the teacher, in his method, in his personal adaptation to the work of instruction, in his enthusiasm, in his ideals, in his personal worth. A school is the center of power only when it is in charge of a competent teacher. The

school attracts and educates only when it is in charge of an educated, courageous teacher. A teacher can do his duty to his pupils only when he feels that he was chosen, not on account of his politics, his religion, or his relationship to the school board, but on account of his qualifications.

Originality Essential.—There is no one best method of presenting any subject. One learns to teach by teaching, by seeing others teach, by reading books on teaching and school management, and by thinking into practice sound methods. The most profound pedagogical maxims have no meaning to a teacher that does not think. “Much talking wearies,” has no meaning to the teacher that has realized his ideal, yet it contains more food for teachers than many books on pedagogy. “Learning without thought is labor lost,” though thousands of years old, contains more food for young teachers than is found in some books on method. “Telling is not teaching,” is another foundation stone. Many teachers never learn what it means. “Teaching a pupil is training him to help himself,” contains the essence of the teaching process, yet many teachers never get a glimpse of its meaning.

The ability to interest pupils depends almost wholly on the teacher’s presence, knowledge of the subject, and enthusiasm. As a desire for knowledge

is more valuable than knowledge itself, the method of the teacher should compel the pupil to concentrate his attention on one thing till he knows it, and until he can give expression in clear and concise language to his knowledge of it. Expression is the test of the pupil's knowledge as well as the key to his mental habits. Method should compel the pupil to realize his best effort in all he does in the schoolroom.

Any reference to method in education suggests the relation which exists between psychology and teaching. Teaching is an art based upon the laws that govern mental development. Psychology furnishes many rules for teaching, but a profound psychologist may be a poor teacher. One may theoretically know a science, yet not know how to apply its principles in practical life. No one can be a good physician who does not have an accurate knowledge of the various operations of the body. Similarly no one can become an intelligent and progressive teacher who in addition to a knowledge of the subjects he teaches has not some knowledge of the operations of the mind. "What physiology is to the doctor psychology is to the teacher."

An art is learned by practicing it. One cannot become a successful cricketer by merely reading books on the subject. No one can become an inspiring teacher by merely reading books on psychology and

method. A teacher who knows something of the science of psychology, the science upon which the art of teaching is based, will probably avoid many errors that he would commit if he were ignorant of the science. He will also teach with more pleasure to himself and profit to his pupils than if he blindly follows the suggestions found in books on method or the example of others. A knowledge of how the mind grows places the work of the teacher upon a scientific basis. The teacher who has some knowledge of psychology is more likely to be systematic in his method than one who blindly applies the rule-of-thumb maxims, the reasons for which he does not understand. The well-qualified teacher is systematic.

Ideals.—Ideals are personal creations and are related to realities as cause is to effect. The real school depends on the ideal school; the teacher's ideals depend on culture, comparison, and conviction. With the teacher who is no larger at the close of the school term than he was at the beginning of the term, teaching is a cramming process; the pupil's mind is a thing to be filled with text-book facts. With the real teacher, the teacher that has an ideal toward which he is growing, teaching is a developing, unfolding, and life-giving process. The mere routine peddler of text-book facts regards information as the end of teaching; the true teacher regards text-book

facts as a means to an end; the former dwarfs and deadens, the latter enlarges and quickens.

A teacher's value is measured by the mental, moral, and physical habits which his pupils acquire while under his care. "By their fruits ye shall know them." If a pupil does not acquire correct habits of study and a love for learning, what does he gain by his schooling that will serve him in after life? Ideals depend on the will; realities depend on ideals; hence it is the teacher's duty to train and strengthen the will of his pupils and to cultivate in them a love for what is true, beautiful, and good. This important duty he can discharge without delivering daily set lectures on moral conduct. His daily life should be an inspiring example of high ideals and right conduct. The routine of school exercises is too mechanical, too soulless to inspire high ideals, develop purpose or character.

The teacher is the ideal. As is the teacher, so will the school become in time. When the teacher is a drone, the school will soon partake of his spirit. When he is a man, capable, progressive, and courageous, alive to his responsibilities, the deadeast of dead pupils will ere long awake to a new life and become living souls. Pupils need the leadership of intelligent conviction and moral courage. Pupils need the guidance of teachers who are conscious of

their defects, and who are struggling for the ideal. Consciousness of imperfection is the only hope of improvement. He is unworthy who makes no effort to improve. He is unworthy whose ideal has not become an object of desire. Only an idealist can build grandly. Ideals are more valuable than learning; purpose more valuable than knowledge.

Children cannot be properly taught by one who does not believe in God and humanity. There is no place in the schoolroom for the pessimistic croaker. The development of high ideals, moral purpose, and character is not encouraged by the presence and the teachings of a pessimist. School teachers should live ideal lives. One good example is worth a thousand pessimistic scoldings. Children cannot be properly taught by one who cannot think, nor by one who is afraid to express his convictions. Children cannot be properly taught by one who does not like to teach. Children cannot be properly taught by one who believes that he is worth more to the district than the district pays him.

Teachers are builders, and the buildings they build will outlast the pyramids; teachers are preachers, and the echo of their words will be sounding on when time shall be no more. The true teacher is more than a theorist dealing with imaginary beings; he is confronted with concrete, living examples and varying

conditions; his duty is not merely to theorize on the laws of right conduct, but to exemplify his teachings in his daily life. The teacher is not called on to teach religion; he is called on to be religious. A teacher must believe in God, humanity, and himself. Believing in these three great realities, he will be ever willing to labor and to wait, and with Holmes say:

“ Build thee more stately mansions, O my soul,
As the swift seasons roll!
Leave thy low vaulted past!
Let each new temple, nobler than the last,
Shut thee from heaven with a dome more vast,
Till thou at length art free,
Leaving thine outgrown shell by life’s unresting sea! ”

The Outlook.—The present is indeed a state of encouraging unrest. Every decade makes radical changes in the subjects taught in the common schools and in the manner of teaching them. The methods of instruction are becoming more and more observational and objective year by year. Parents are beginning to believe that trained teachers are required to train children. They are beginning to see that the great lessons of life are learned, not from text-books, but from parents and teachers. The fact that the schools of to-day are better than the schools of ten years ago encourages the belief that they will still continue to improve and that trained teachers will soon be found in every schoolroom.

Training schools for teachers and compulsory school laws indicate a deep-seated conviction that education is a common necessity. The conquests of the present outrank those of the past; they have a deeper meaning. The intellectual and moral history of the past century is inspiring. The divine purpose is seen in all things. In the presence of what man has done who can prophesy his future? This century is little less than an age of miracles, yet I believe still greater achievements await us. The sphere of the teacher is distinctly altruistic. What a solemn and tender task is imposed on the teacher into whose hands is committed by loving parents the plastic clay of human character, to be molded into statuary more imperishable than marble.

TEST QUESTIONS ON THE CHAPTER.

To TEACHER AND STUDENT.—The “Questions” are not exhaustive. After a subject has been thoroughly discussed in the class, each pupil should be required to exhibit his knowledge of it in the form of written recitation, not written examination. He should be required to use his own language in defining terms and in illustrating principles. The ability to quote authors is one thing; the ability to express the thought in one’s own language is another thing.

1. In what important particular do the facts of psychology differ from other facts?
2. Of what use is the study of psychology to the teacher?
3. Why is psychology called the subjective science?

4. Why are all the other sciences called objective sciences?
5. Define mind and name its distinguishing characteristic.
6. Name and define the three powers of the mind.
7. What is meant by the nervous system?
8. Define nerve-fibers and give their functions.
9. Define nerve-cells and give their functions.
10. What is included in the central nervous system?
11. Locate and describe the brain.
12. Locate and describe the cerebrum and give its functions.
13. Locate and describe the cerebellum and give its principal functions.
14. Locate and describe the spinal cord and give its principal functions.
15. Define a sense and a sense-organ.
16. What is meant by the special senses? Name them.
17. What is knowledge? How many kinds of knowledge are there? Illustrate.
18. What is presentative knowledge? Illustrate.
19. What is representative knowledge? Illustrate.
20. What is representation? What may be represented?
21. What is meant by consciousness? Illustrate.
22. Define the phrase, "Field of Consciousness."
23. Define the phrase, "Focus of Consciousness."
24. Define the phrase, "Margin of Consciousness."
25. What does the phrase, "Field of Consciousness" usually include beside the object in the focus?
26. What is meant by the term *subject* as used in psychology?
27. Define faculty as it is used in mental science.
28. What is mental growth, and where does the mind get its material?
29. What is meant by mental development?
30. What two kinds of knowledge should a teacher possess?

31. Define the word *method*, and explain what it means in school work.
32. Explain why a teacher should be enthusiastically in earnest in the schoolroom.
33. State clearly and concisely what you understand by mental-training; by memory-cramming.
34. Why does cramming deaden the faculties?
35. Define mental development, and distinguish between a trained and a crammed mind.
36. Why should the method of the teacher be in important sense chiefly original?
37. Why is competency essential? State why the incompetent teacher cannot arouse interest in his classes.
38. Explain fully what is meant by interest.
39. Why do we fail to remember what does not interest us?
40. Show that interest must accompany acquisition.
41. What is meant by, "As the twig is bent, so is the tree"?
42. Why is self-trust important?
43. Explain, "A sound mind in a sound body."
44. Why should the teacher be what he would have his pupils become?
45. Why cannot the ideal be realized?

CHAPTER II

ATTENTION

The dependence of intellectual operations on attention gives it the first place in the discussion of how the mind grows. Attention is a condition of all intellectual operations. We see things only when we notice them. We notice things only when we concentrate consciousness on them, or, in other words, when we attend to them. One may see a person, yet not see him; one may hear a sentence without understanding it; one may be touched without feeling the touch. What one sees, or hears, or feels, or tastes, or smells depends on the attention he gives to the stimulating cause. In an educational sense inattention is absence. “Clear thoughts, distinct feelings, deliberate volitions are impossible without concentrated attention.” The great importance of this subject privileges me to quote a beautiful example from *Psychology in the Schoolroom*:

“Two boys are talking in an undertone in the class. The teacher is dimly conscious of a ‘noise’ in the room; he thinks there is a noise, but is not certain. He begins to listen, to concentrate his mind, as

it were, upon the supposed sound. He identifies it as a sound of conversation, and localizes the sound as coming from the two boys who are talking. The boys are talking no louder at the conclusion than at the beginning of the incident, but the teacher has by his act of attention given greater distinctness and vividness to his consciousness."

As I walk along the road to my country school I notice a number of sheep grazing on a hillside, and see a herd of horses in the bottom land. My consciousness is diffused. I can, however, concentrate it on either the sheep or the horses, or I can pick out one particular sheep or one particular horse and attend only to it. Consciousness is always more interested in one part of its object than in other parts, and welcomes or rejects all the while; it chooses the object on which it will focus its powers. This is its most important characteristic. Voluntary attention selects. It involves the withdrawing of mental power from certain objects to fix it on another object. (The teacher will give an example illustrating this important every-day fact.)

We are now ready to study some formal definitions of attention: 1. "Attention is the active self-direction of the mind to any object which presents itself to it at the moment." 2. "Attention is consciousness concentrated on an object; or a concentration of

cognitive consciousness." 3. Fitch says: "By attention I mean fixity of thought, the concentration of the whole mind upon the subject at a time; the effort of will by which we are enabled to follow what we hear or read, without wandering, without weariness, and without losing any particle of the meaning intended to be conveyed." Professor Dewey says: "In attention we focus the mind, concentrate it in a point." In a word, attention is the lens of the mind. Giving attention means concentrating consciousness on an object. (The class will give two examples illustrating this fact.)

The importance of attention in mental operations privileges me to quote a paragraph from Prof. James' *Talk To Teachers*: "Whoever treats of interest treats of attention, for to say that an object is interesting is only another way of saying that it excites attention. . . . Besides the attention which an object already interesting or just becoming interesting claims—that is, besides passive attention—there is a more deliberate attention—voluntary attention or attention with effort, which we can give to objects less interesting or uninteresting in themselves. . . . The sustained attention of the genius, sticking to his object for hours together, is for the most part of the passive sort." A little thinking will convince any one that prolonged atten-

tion is due to interest and is passive rather than active. That is, it is not forced attention.

If the subject is not interesting the minds of the pupils will wander, and will have to be brought back to the subject by threats or by the superior will-power of the teacher. The teacher that cannot get the passive attention of his pupils is a failure, for voluntary attention is spasmodic. "It comes in beats." "The prescription is, the subject must be made to show new aspects of itself; to prompt new questions; in a word, to change." No one can long hold the attention of others, young or old, who is not master of his subject, and who cannot make the subject interesting. From an uninteresting subject the attention of pupils will wander.

Experience asserts that long-continued voluntary or consciously willed attention is impossible. It is a well-established fact that attention directed and held by the will is a momentary affair. Experience also asserts that the kind of attention needed in the schoolroom is born of interest; that it cannot be forced or compelled by any of the devices of the untrained or passive teacher. It is quite obvious that prolonged or passive attention can be maintained only in one way, by making the subject interesting. When pupils are interested in the work of the school the school governs itself. The greater the interest

on the part of the pupils, the less the teacher needs the attire or the frowns of a policeman, and the more smoothly, pleasantly, and profitably will the work of the school become.

As there are two kinds of consciousness, diffused and concentrated, there are two kinds of attention, diffused and concentrated. The distinction between the two kinds of attention refers to the quality of the effort involved in the act of attention. Some acts of attention are only lightly marked by conscious effort; other acts are very strongly marked. The attention which is only lightly accompanied by effort is *passive* attention; that which is strongly accompanied and controlled by effort is *voluntary* attention. In passive attention the will is not consciously present; in active or voluntary attention the will is always present and often in a very aggressive and burdensome form. (The teacher will give illustrations showing the two kinds of consciousness, and the consequent two kinds of attention. The class will give an example of concentrated attention.)

Kinds of Attention.—There are two kinds of attention—voluntary and non-voluntary, or involuntary, as the latter is sometimes called.

Voluntary Attention.—The attention given to an object of our selection and accompanied by a sense of effort is voluntary attention. “Voluntary attention

is that condition of the mind in which it puts forth effort under the impulse of desire." When we choose to attend to this thing rather than to any other thing we exercise voluntary attention. Twice while writing this paragraph I have been disturbed by callers, but twice I have brought my mind back from its wanderings and deliberately fixed it on this subject. This act is an illustration of what is meant by voluntary attention. Voluntary attention determines the capacity of the mind to perceive, to know, to feel, thus enabling the teacher to exact more or less of the pupil. (Teacher will illustrate.)

Non-Voluntary Attention.—Non-voluntary attention is the kind of attention given an object on account of the mere force of the stimulus of the object itself. Sometimes we are forced or compelled to attend. Who can help attending to the pain of the sting of a bee, or to a terrible peal of thunder, or a blinding flash of lightning? We involuntarily attend to anything which excites our interest or curiosity. An unusual sight or noise always compels attention. Non-voluntary attention is sometimes called reflex attention. "That is, we are frequently determined to acts of attention independently of our free and deliberate volition." (The teacher will illustrate this fact. The class will give an illustration of voluntary attention, also one of non-voluntary attention.)

**VOLUNTARY AND NON-VOLUNTARY ATTENTION
COMPARED.**

We will now examine some of the ways in which voluntary and non-voluntary attention differ. In voluntary attention the stimulus is internal. In non-voluntary attention the stimulus is external. In voluntary attention the will can exclude certain stimuli and select other stimuli. In non-voluntary attention the stimulus acts independently of the will. In voluntary attention the mind is master of the stimuli. In non-voluntary attention the stimuli are master of the mind. Voluntary attention is aroused and maintained by interest. Non-voluntary attention does not depend on interest. It is forced attention, attention forced or compelled by external and unexpected causes. (Class will give examples.)

Example.—I see a beautiful landscape and stop to look at it. While I am gazing on the scene a man unseen by me, hunting in an adjoining field, fires a couple of shots; involuntarily my attention is drawn from the scene, and turns to the hunter, forced or demanded by the suddenness, the unexpectedness, or the nearness of the reports. (Both teacher and class will give other examples of non-voluntary attention.)

Law of Attention.—“The extension of consciousness at any instant is in an inverse ratio to its intension.” That is to say, the more intently one con-

siders any one of several objects simultaneously in consciousness, the less clear will be the other objects; and, on the other hand, the greater the number of objects to which consciousness is simultaneously extended, the weaker is the intensity with which it considers any one. This statement is a self-evident truth and one of the most important schoolroom truths discovered by the study of mental operations. It clearly suggests two things to the teacher: Clear the pupil's mind of ideas floating around in the margin of consciousness; then concentrate his attention on one thing that a clear and lasting impression of that idea may be made. Locke says: "It should be the skill and art of the teacher to clear the heads of his children of all other thoughts while they are learning anything, the better to make room for what he would instill into them, that it may be received with attention and application, without which it leaves no impression." (See Locke on the *Understanding*.)

Introspection proves that one may be conscious of many things at once. Knowing, feeling, and willing are conscious activities that are constantly in exercise. Knowing is never exclusively occupied with a single object. Many colors, many sounds are simultaneously perceived. Memory is never alone; it is of many associated things, and the same is true of thoughts. I perceive, remember, and think all in the same instant.

It must be clear that when consciousness is concentrated on one thing to the disregard of marginal intruders, the intensity of consciousness relative to it lessens the intensity of consciousness given to other objects. That is, the object drawn into the *focus* of consciousness gains vividness at the expense of the objects in the *margin*. There is no loss in nature without a corresponding gain. This is the law of compensation. (Teacher will illustrate the law.)

It is well known that the amount of attention fixed on any one thing constantly varies. It is also a well-known fact that it is not possible to hold the attention, at a perfectly steady strain, longer than a minute or perhaps half a minute. All attention is inconstant; it rises and falls. The same amount of attention is not required in all mental states, some requiring more, others less. In a general way, interested attention is the kind of attention required in the classroom, because interested attention is the condition of a retentive memory. Generally the mind's retention is directly proportional to interested attention. The teacher who cannot secure and retain the attention of a class is an unqualified schoolroom failure.

Importance of Attention.—Attention is a general condition of mental operations; it determines the character of every field of consciousness, for all our conscious states are characterized by some degree and

kind of attention. Knowing, feeling, and willing involve attention. All thinking is clearly an active state of mind, involving a voluntary fixing of the attention. To give attention is to intensify consciousness by concentrating or narrowing it to some definite area or object. Dewey says: "In a broad sense every act of knowledge may be regarded as due to attention, for every consciousness involves the activity of the mind. Nothing can be in consciousness that consciousness does not put there. As there is no consciousness without attention, consciousness and attention are identical. Attention determines what ideas shall occupy the focus of consciousness; hence it is the selective activity, the associating, and the relating activity of mind. Mind can associate and relate only what is selected for its use by attention. *Attention is the instrument of education.*"

The chief difference between the trained and the untrained mind is the greater capacity of the former for close, continuous, concentrated attention. The chief difference between the successful and the unsuccessful teacher is the power of the former to secure and retain the attention of his pupils. The chief difference between the studious and interested pupil, and the idle and indifferent pupil is that the former gives an attentive ear to the voice of instruction, while the latter is inattentive. The chief difference

between the successful and the unsuccessful business man is that the former secures and uses the attention of the public. Almost everything will sell at a profit if the attention of the public is called to it in the right way. The enormous sale of patent medicines is sufficient to illustrate this fact.

Attention — Consciousness.— “Consciousness admits of many degrees of distinctness.” One may be vaguely conscious of a bodily pain or of some object brought before the mind through the senses. The mind is often in a state of diffuse consciousness. We perceive clearly only when we intensify consciousness by concentrating it on one object. Consciousness increases in vividness as the field of consciousness is diminished in area, and the number of objects in the field is reduced in number. This simple fact should be experimentally known by every teacher and consciously recognized in all that he does in the school-room. Van Norden says: “The searchlight of consciousness cannot play upon many groups of phenomena at once. If any but confused thinking is to be done, attention must be directed to one grouping and abstraction for the time from all others enforced.” (Teacher will illustrate.)

Consciousness — Cognition.— Notwithstanding the fact that every definition of consciousness seems to move in a circle, lexicographers and a few psycholo-

gists have attempted to define it. Lexicographers define consciousness as follows: "The state of being conscious; sensation; knowledge." Steward, a psychologist, says: "Consciousness is the immediate knowledge which the mind has of its sensations and thoughts, and in general of all its operations." While in a definite sense it cannot be defined, psychology can study its forms, conditions, and assume its existence in man. "The reality of consciousness has never been denied." Self-consciousness is definable, and implies the presence *in* consciousness of a self-known subject or being that knows itself as being conscious. See INTRODUCTORY TOPICS, CHAPTER I.

Cognition.—Lexicographers define *cognition* as follows: "Cognition is knowing; consciousness of an object." Cognition is a condition of all the other mental activities. An illustration will make this fact clear. "One cannot feel unless there be some known object to determine in him the kind and the degree of feeling; one cannot desire unless there be some known object toward which his longing tends; one cannot choose unless there be alternative objects of cognition desired; one cannot make a voluntary effort unless he forms prospectively an image of the action." (Teacher will illustrate.)

Attention — Sensation.—Sensations are nothing to the mind until they are selected for its use by atten-

tion. Streams of sensations are constantly struggling for a chance to survive in consciousness, but only those sensations which succeed in attracting attention survive and are used in forming percepts. Attention is the doorkeeper that sits in judgment at the very beginning of mental life, and selects the material for the use of the mind in every stage of its development. We can materially alter the intensity of a sensation by turning the attention towards or away from it. Attention not only selects the raw material of knowledge, it also selects the cloth for our garments and our partners for life. Sense-impressions must be entertained; they must be stamped on the mind with the force born of vigorous attention or they will soon fade out. There must be depth to the impressions. The focusing of the attention is the thing; the cause of the focusing matters not.

Van Norden says: "The freshness and vividness of sensations are intensified by attention. An absent-minded person, though a lover of music, may lose the pleasing effect of the most beautiful symphony or aria through sudden distraction of attention to some wonted train of thought. Either painful or pleasurable sensations may be dulled or quite ignored by persistent distraction. Consciousness turns the yellow spot of its mental eye upon the sensation and it is seen more clearly."

Attention—Perception.—What we perceive depends on what we really see, hear, taste, touch, or smell. Since attention is the mental energy devoted to objects in the field of consciousness, it follows logically that the character of the percepts depends on the quality or intensity of the attention given to the object in consciousness. It also follows that attention, like any other finite energy, is most intense and complete when focused on a single object. From these simple facts it is plain that it is the teacher's duty to clear the minds of his pupils of all floating and irrelevant ideas and concentrate them on the subject under discussion. Ideas grow in distinctness only when we entertain them with voluntary attention. If the pupil would acquire clear ideas he must give vigorous attention—the attention born of interest and purpose. The pupil's attention must be focused on one thing.

The vigor of perception depends on concentration of attention. We may easily see and not perceive, or perceiving not perceive clearly. That the process may be keen and accurate, the mind must direct and supervise. You smell odors of flowers, you stop, sniff the air, and perceive that it is mignonette. Or you hear a bell, start up, and on second stroke, listening, perceive that it is the fire alarm. A steamer passes on the river; you shade your eyes,

look very intently, and easily perceive the name on the pilot-house. (Class will give an illustration.)

Ladd says: "The degree of attention we give, whether forced or voluntary, has much to do with our noticing distinctions, and, indeed, with the very existence of our sensations and ideas in their varied forms. It also determines largely how we shall interpret our sensations." Repeated acts of attention clear up any object. Thus, if a disk, having on it differently colored spots or lines or different letters, be displayed a brief time, the utmost attention will on the first trial enable us to discern perhaps only some three or four of these spots. But soon by repeated acts of attention a larger number of the spots is clearly seen after the disk has been displayed for the same length of time.

Attention — Apperception. — Attention concentrates the mind and brings percepts into relation with our previous states and assimilates them. It arouses and quickens the ideas already in the mind and discovers similarity between the new and the old and "takes in" the new. Perception proper is the result of combining sensations into wholes. To do this requires attention, for only those sensations to which we give conscious attention are combined. To perceive an idea is to apprehend it through the senses. To apperceive an idea is to add it to old ideas or ob-

jects already in the mind by using the old ideas as interpreters of the new ones. The word *apperception* means nothing more than taking into the mind. If this statement is not true, why does a child call every new thing he sees by the name of something that resembles the new thing and with which he is already familiar? Why does a child call snow sugar the first time he sees snow? Why does he call the first orange he sees a ball? Read the little book, *A Pot of Green Feathers*, by Mr. T. G. Rooper.

Attention—Discrimination.—To discriminate, to notice, and mark off distinctions involves voluntary attention. In choosing to attend to one stream of sensations in preference to another, or to this idea in preference to that one, we discriminate. All knowing means discriminating one object or idea from another. No impression is clear or definite until it is picked out and discriminated from other impressions. An impression cannot be assimilated until selected by attention for a definite purpose. Directing attention to an impression separates it from other impressions and gives distinctness to it. Discrimination is involved in thinking. In fact thinking is little more than discrimination and assimilation. In thinking we first discriminate between sensations, ideas, or objects, then assimilate or join the new acquisition to the material already acquired. Connecting one judgment

with another implies the ability to detect similarity. To detect similarity between objects, as in conception, involves discrimination. The stupid mind is one that cannot discriminate, one that supposes similarity to exist where it does not. Reasoning is accurate only to the extent that we discriminate correctly and assimilate.

Attention — Retention.—The retaining power of the mind usually depends on the depth of the impression. The depth of an impression is generally determined by the vigor of the voluntary attention given the perception. If our minds are preoccupied, an unusual noise, sight, or odor may fail to make an impression. When a boy is interested, as in a game of ball, the impression becomes well stamped on his mind; that is, it acquires depth, and retention follows naturally. Vigor of attention insures a clear discrimination of the object in the focus of consciousness. A vigorous and complete mental act trains and develops the faculty that puts it forth; a desultory and incomplete mental act weakens and retards its growth. The value of every mental act depends on the character of the attention given the act.

Sully says: “The immediate effect of an act of attention serves to give greater force, vividness, and distinctness to its object. Thus, an impression of sound, as the tolling of a bell, becomes more forcible,

and has its character made more definite, when we direct our attention to it. A thought, a recollection, is rendered distinct by attending to it. The intensification of consciousness in one particular direction produces an increase of illumination, and so subserves the clear perception and understanding of things."

Attention — Recollection.— The reproduction of presentations is a passive operation. It is independent of the will and controlled by the laws of association of ideas. When the brain conditions of retention are good the flow of related images goes on automatically. One may will to remember, but he cannot recall an image by willing to do so. The will cannot secure the revival of an impression except by the aid of the laws of association. Mind, like matter, is controlled by law. All that anyone can do to acquire an attentive memory is to put himself in the proper mental attitude during the perceptive process. This active side of memory is called recollection. Recollecting is remembering by an effort of the will. Vigor of attention gives depth and distinctness to a perception; hence persistence. Experience proves that we recollect only those experiences and events which interested us and to which we gave attention.

Fitch says: "For you know, however hard it may be to gain attention, we must get it if we are to do any good at all in school. It is of no use there to

tell children things which go no deeper than the surface of their minds, and which will be swept away to make room for the first trifling matter which claims admission there. If children are really to be the better for what we teach them, if the truths which we love so well are really to go deep into their consciences, and become the guiding principles of their lives, it is no half-hearted, languid attention which will serve our purpose.”

Attention—Association.—Two impressions may become closely associated with each other by a special act of conjoint, voluntary attention. A child sees an animal and hears its name at the same time. By attending closely to the two things together, by an act of conjoint attention, his mind makes in a sense one object of them. The mention of one suggests the other. Children thus associate a stranger and his name. A place recalls some pleasurable or painful event that happened there because of the voluntary, conjoint attention the place and the incident received at the time. Voluntary attention on a number of objects or events in their connection with one another tends to associate the series of objects or events and to recall them as a series. The associative force depends on voluntary attention, interest, and purpose. The grouping, combining, assimilating, and associating mental operations depend on attention

Attention—Interest.—Without attention interest is impossible. Interest is the product of desire and attention. The teacher that cannot secure the pupil's attention cannot interest him. This fact the teacher should fully recognize, and govern himself accordingly. As we must *attend* in order to know any object in the field of consciousness, it follows that one cannot become interested without giving attention. Knowing depends on attention. Attention follows the line of interest. It is questionable whether one can attend for any considerable length of time to that which possesses for him no interest. The teacher must interest his pupils, and this he can do only by securing their attention. The way to secure and retain the attention of pupils is to supply the conditions that invite attention. No one can tell another just how to interest a pupil. Age and experience can only suggest; principles and laws must be modified and applied. Personal thinking is the only solvent. Cheap devices will not secure a pupil's attention nor win his respect. Keeping an idle pupil in at recess or after school never made him more studious, more respectful, or better.

Attention—Feeling.—Under *feeling* psychologists include all pleasurable and painful conditions of mind. Experience shows that our feelings depend for their intensity and duration very largely on atten-

tion. Feeling is usually proportional to attention. Feeling increases or decreases as we intensify or modify attention. That is, feeling rises or falls with the degree of attention given to the object or the thought. Attention intensifies every mental state, especially feeling. Conversely feeling intensifies or focuses attention. An illustration or two will suffice to show the effect of attention on feeling. Dr. Carpenter gives the following example of the effect of attention on the feelings: "Before the introduction of chloroform patients sometimes went through severe operations without giving any sign of pain, and afterwards declared they felt none. They concentrated their thoughts, by a powerful effort of abstraction, on some object which held them engaged during the operation." That is, by an effort of the will they were not conscious of painful sensations. Conscious sensation, as has been stated, depends on attention. "Will you take something?" asked the surgeon of the man who had called to have a mashed finger amputated. "No," replied the patient, "I'll just think hard of something else;" and he did think hard of something else, for he said to the writer, who was present at the operation: "I hardly felt it."

Attention—Will.—Attention is never wholly passive; hence it is a manifestation of will. In one respect it is always a form of one's doing. In the

highest forms voluntary attention is the same thing as will. What we will to do depends on attention. As every voluntary act is a deliberate act it follows that the will is the essential, dominant factor in decision. Decision involves discrimination; discrimination involves the highest form of voluntary attention. Voluntary acts are reflective in that they follow reflection or attention. Every voluntary act involves attention. In doing a thing the mind is fixed on the object desired and in a degree on the action subserving this; hence willing depends on attention.

Davis says: "It is the special function of the will to fix and hold attention. The great significance of this fact in human nature becomes apparent when we observe that (the control of muscular energy not excepted) will has no other controlling power. Voluntary attention to this or that object is the sole but the sufficient means of self-control. I have no other, and I need no other, means of repressing, arousing, directing, or combining my faculties, whether cognition, feeling or desire. . . . To acquire this power of attention should be the primary purpose of all mental discipline; for by it alone can one cultivate and realize his natural gifts, by it alone can he rigorously train them, by it alone can he direct their exercise in the manner best suited to expand and elevate, and by it alone can he restrain them from all that

would limit and debase.'" This beautiful description of the power and value of attention is worthy of the most thoughtful consideration by those who have assumed the infinite responsibility of training the young.

Many teachers do not or can not see or hear. Slowly, perhaps unconsciously, they become blind and deaf. A teacher needs both eyes, trained eyes; both ears, trained ears; and an active, full pulse. The recitation affords the teacher an opportunity to train pupils to give voluntary attention. A teacher cannot secure the attention of a class and pick at pupils in their seats at the same time, nor can a teacher secure and retain the attention of a class unless he sees every member of the class all the time. This he can easily do if he has trained himself to see. A passive and characterless teacher cannot command the attention of pupils. A teacher's presence speaks; it either commands respect and obedience or it invites disrespect and disobedience. Pupils are seldom mistaken in what a teacher's presence expresses. Slow and sluggish mental and physical movements on the part of the teacher encourage slow and sluggish habits on the part of the pupils. Successful teachers are quick, earnest, and positive in speech and action.

Attention—Action.—"What holds attention, determines action." But whatever we attend to interests us; hence whatever interests us determines ac-

tion. In the schoolroom attention and interest are synonymous terms. It is self-evident that without attention interest is impossible, and without interest action is impossible. "Effort of attention is the essential phenomenon of will." It is all that any act of will implies. Attending is willing. If the teacher would have his pupils acquire studious habits, he must get them to doing, and this he can do only in one way—by interesting them in their studies. No one can tell a teacher exactly how to do that. Psychology tells how the mind acquires knowledge, but it cannot prescribe methods of instruction for individual teachers. The teacher whose knowledge of the subjects he teaches is broad and deep, and whose personality is strong, winning, and inspiring, is more likely to secure and retain the attention of his pupils than a teacher whose knowledge of the subject is scanty and whose presence is discouraging.

Attention—Habit.—Giving attention is a habit, and like all other habits is a growth. Success in the schoolroom, as well as elsewhere, is the product of attention, purpose, and labor. The habit of attending is acquired and maintained only by forcing the mind to attend, by willing it back to the object as often as it wanders away from it. Only in this way will the inattentive, wandering mind acquire the habit of giving attention. The will must be obeyed until

the most valuable of all mental habits is acquired, the habit of attending. Cultivate attention. Many a man passes through life without concentrating his mind on any subject. He lives passively, dies passively, and is soon forgotten. He believes this or that without question, for questioning involves thinking, and thinking is hard work.

Sully says: "Voluntary attention, like voluntary action, as a whole, is perfected in the form of habits. By a habit we mean a fixed disposition to do a thing, and a facility in doing it, the result of numerous repetitions of the action. The growth of the power of attention may be viewed as a progressive formation of habit. At first voluntary concentration of mind requires a spur and an effort. As soon as the presence of strong motive is withdrawn the young mind returns to its natural state of listlessness or wandering attention. A habit of attention first appears as a recurring readiness to attend under definite circumstances; for example, when the child goes into his classroom or is addressed by somebody."

Attention—Success.—Tenacity of attention chiefly distinguishes the studious and self-possessed pupil from the indolent and restless pupil. Many pupils, as well as adults, belong more to others than to themselves. Often the seeming dullard in school surpasses the genius because of the tenacity of his atten-

tention to one thing until that thing is mastered. The brightest pupil might have mastered the same class task in half the time had he given the same kind of attention to it, but his spasmodic nature scorned the restraint of voluntary attention. Spasmodic attention never wrote a poem, or acquired great knowledge, or even great learning. Spasmodic attention to business never accumulated a great fortune nor established a good business reputation. Tenacity of attention usually distinguishes the successful from the unsuccessful business man.

Compayré says: "It is not only in study that attention is profitable. The conduct of life and the virtues of character have no less need of it than excellence of the intelligence has. Defective attention in practical life is the synonym of thoughtlessness and heedlessness. To be habitually attentive is not only the best means of learning and progressing in the sciences, and the most effective prayer which we can address to the truth in order that it may bestow itself upon us; but it is also one of the most precious means of moral perfection, the surest means of shunning mistakes and faults, and one of the most necessary elements of virtue."

Pupils must give undivided attention during the recitation if they would succeed in acquiring lasting impressions. The teacher that cannot get and keep

the attention of his classes during recitation cannot succeed in the schoolroom. As iron is forged into shape only when it is hot, so mind is drawn out only when it gives attention. Lack of attention and interest on the part of pupils in their school work is usually due to a lack of interest, enthusiasm and a definite purpose on the part of the teachers. "As is the teacher so is the school." Like produces like, and all influence, good or bad, makes an eternal imprint on thought and character.

Thring says: "A teacher might as well stand up and solemnly set about giving a lesson to the clothes of the class, whilst the owners were playing cricket, as to the so-called class if the pupils were inattentive. Attention is a thing to be learned and quite as much a matter of training as any other lesson. A teacher will be saved much useless friction if he acknowledges this fact, and instead of expecting attention, which he will not get, starts at once with the intention of teaching it." (Teacher will illustrate.)

The pupil's attention the teacher must get and hold in one way or another. To this end an earnest, aggressive, sympathetic activity on the part of the teacher should characterize his personality during every recitation. Personality distinguishes mind from matter. Mere clothes and a license to draw public money does not fully equip one to teach. Children

are not machines and cannot be used as machines. Only to the extent that the teacher trains the pupil to attend, to think, to help himself is the teacher helpful. Telling, suggesting, and excusing a pupil is permitting the pupil to continue to sleep. Get the pupil's attention by calling on him often. Glance along the class, pick out an inattentive pupil, call on him to recite. Glance along the class again, and again, and again, until you have called on every member of the class.

Earnestness Essential.—Without aggressive, sympathetic earnestness a teacher cannot attract and retain the attention of his class. No one can interest a class while he is asleep or in a comatose condition. If the teacher dreams, the pupils will dream also. Want of energy in speech and action is a frequent cause of failure in teaching. A dreaming, lingering form of expression, accompanied by slow and uncertain bodily movements on the part of the teacher, produces a similar unhealthy condition on the part of the pupils. Inspiration is born of confidence and energy. Courageous action on the part of teachers begets courageous action on the part of pupils. Interest is born of interest. Purpose is seen in the eyes, in the gestures, and in the voice. There is a magnificent personality in every successful teacher or leader. The power which commands and retains the

attention of pupils and audiences is inherent in teachers and in other leaders. Without presence, tact, and enthusiasm no one can secure the attention of others, young or old.

The teacher who knows only one way of presenting a subject or of hearing a recitation is little more than a machine recitationist. The one-method teacher and the traditional believer in the *fixedness* of things soon put the brightest persons to sleep. Mere formalism is a search after premature death. All nature teaches change. In the primary grades frequent changes in the method of hearing recitations is absolutely necessary to get and retain the attention of the pupils. Young pupils like new ways of doing things; hence the primary teacher should know more than one way of presenting a subject. In short, she should know several ways. It matters little what special method she uses if the method is her own. The primary teacher must be in a large measure original. She cannot successfully reflect the light of another; she must be a sun to herself. In the primary grades the teacher's success depends almost wholly on her power to secure, and tact to retain the attention of her pupils. Without the methodical tact which compels the pupils to give attention the primary teacher is the greatest of all schoolroom failures. Primary teachers need tact to execute, and ability to invent.

Physical Condition.—In assigning class tasks the physical condition of the pupil should be duly considered. The physical condition and home environments of many pupils make it impossible for them to keep pace with those who are physically strong and who are blessed with more favorable home surroundings. Every teacher of experience knows that pupils attend better in the morning than in the afternoon, because a new stock of energy was acquired during the night. Weak children are deficient in energy and consequently are prone to be inattentive. On account of the greater vigor of body and mind in the forenoon the more difficult subjects should be discussed in the forenoon. Classes in arithmetic, algebra, and geometry should be heard in the forenoon, while the body is most vigorous and the mind the freest, the clearest, and the most responsive.

As sensation, perception, memory, feeling, and willing depend on attention, it follows that learning depends on attention. The one paramount qualification of the teacher is the ability to get and hold the attention of his pupils during recitation. The teacher must get and hold the attention of his pupils if he would train them. If he has not the indefinable, personal magnetism, the acquired qualifications, the moral purpose, the energy, and the enthusiasm that will attract and keep the attention of his pupils, he cannot

govern or train them. Without attention nothing can be learned. If we do not get perceptions we have nothing to remember. Poor memories usually result from inattention and indistinct perception.

A good method reaches each pupil of the class every recitation. In a very large class some will be inattentive and form the habit of inattention. A large class may give passive attention, but passive attention does not acquire lasting impressions. The teacher that trains commands attention, and calls out the pupil's best effort. Teachers too often forget that the primary office of the school is training pupils for power, not the acquisition of a specified number of text-book facts. In a large class require little of a pupil at a time. Keep every pupil on the alert by energy and tact during the recitation. Judicious questioning by the teacher will usually discover the pupil that has been helped. If he has been helped he cannot give reasons for his answers.

From the foregoing brief survey of the part played by attention in our mental life, it should be seen by the youngest teacher that attention is the determining constituent in every mental act, and that it determines the character and value of every mental operation. Attention plays an important part in our lives; it determines the direction of our thoughts, and therefore our hopes, aspirations, characters, and destinies.

TEST QUESTIONS ON THE CHAPTER.

1. Give two definitions of attention.
2. Define voluntary attention and give two illustrations.
3. Define non-voluntary attention and give two illustrations.
4. What is the principal difference between voluntary and non-voluntary attention?
5. On what does voluntary attention chiefly depend?
6. Why is attention called the "Instrument of education?"
7. Why is an inattentive pupil an absent pupil?
8. Why is the teacher who cannot arouse interest and secure attention a failure?
9. What is the principal cause of the difference in the class-standing of pupils?
10. Show that conscious sensation depends on attention. Give three illustrations.
11. What is meant by concentration of attention?
12. Show that attention narrows the field of consciousness.
13. In what way does narrowing the field of consciousness affect the objects still remaining in consciousness?
14. State and illustrate the main laws of attention.
15. What are the most common causes of inattention?
16. Show that perception depends on attention.
17. Show that interest depends on attention and that attention depends on interest.
18. Can one attend to more than one thing at a time?
19. Show that mental training depends on attention.
20. Why cannot a passive and timid teacher secure the attention of pupils?
21. Is attention a constant or a variable state?
22. How is the habit of giving attention acquired?

CHAPTER III

SENSATION — PERCEPTION

The process of attaining knowledge begins with the reception of sensations by the mind. Sense supplies the materials which the intellect assimilates and elaborates according to its own laws. Before we can know anything about the material objects which surround us they must impress our minds through the senses. This primary fact of mental science should be thoroughly understood by the pupil that he may know how dependent the higher processes of mental development are on sensation, and how dependent sensation is on attention. (The teacher will illustrate these facts by showing how dependent perception is on sensation, and how dependent sensation is on interested, concentrated attention.)

As stated in Chapter I, mental development is a gradual growth. It begins with sensation and ends with abstract thinking. Sensation, as here used, is the simplest mental state, a state of mind resulting from the stimulation or excitation of an incarrying or sensory nerve. "Sensation," says Dewey, "is the easiest of all mental phenomena to identify." It is

the easiest to identify because it can usually be referred to some part of the body, to the excitation of a particular nerve organ. Sensation involves two distinct elements—a physical element and a psychical element. It involves both body and mind. What is meant by sensation as a result due to nerve stimulation is best seen by giving examples.

While writing this article I smell something sweet, but I am too busy to tell where the odor comes from. That is, I have a sensation of *smell*. The sensation is caused by minute particles of a substance which reach the end organs of the nerves of smell and set up vibrations there. These vibrations are carried to the brain by an afferent or sensory nerve. So far the operation is wholly a physical one, the body only being concerned. The mind reacts on the vibrations, and distinguishes them from other vibrations which reach it from other end organs. This part of the operation is psychical. Now, I have a sensation of *smell*. (The teacher will add another example. The class will distinguish between the two parts of a sensation; will show that both body and mind are involved.)

I am sound asleep. Some one knocks at my bedroom door, but I do not hear the knocking. There is no sensation of noise for me, because I do not *attend*. The air vibrates, my sensory nerves are in good condition, but I do not have a sensation of noise

because my mind is asleep. I am unconscious. The organs of hearing, and the vibrations caused by the stimulation of the proper end organs have done the physical part, but the mind has not been aroused; hence there is no sensation for me. Sensation depends on conscious attention. That is, both body and mind must act at the same time. It is also clear that while sensation has a physical basis it is a psychical state. It is mind that feels. The character of the impression depends on the character of the vibrations and the attitude of the mind at the time, on the kind of attention given the vibration.

Sensation is the raw material of knowledge. Through the senses the mind receives impressions, but these impressions would never lead to objects of knowledge if the mind itself did not work on them. The mind interprets sensations. It is not difficult to understand this statement. Introspection, a looking inward, divests the subject of educational psychology of all its alleged mysteries. The elementary principles of psychology can be understood and applied in the classroom without any of the drum-major display of polysyllables that are used by the professional lecturer on this subject:

At birth no other living creature is more ignorant and more defenseless than the human infant. Everything has to be learned from the beginning. He

knows nothing of the world that he must explore and conquer. With a thousand stimuli nature assails his senses, knocks on the door of his mind, and begs for admission. The mind responds to these stimuli, and finally masters the outer world by perceiving it. Sensations make us directly conscious of the action of the outer world on the mind. Sensation is subjective; it is an inward phenomenon that is related to the feeling *self*. It is nothing to the mind till perceived. The only function of sensation is to supply the material on which the mind works. "Sensations are not knowledge any more than wool is cloth." A sensation is not the quality of matter nor a knowledge of the quality. Sensations are simply the means by which objects are revealed. We perceive an object when through sensation the mind is brought into contact with it and objectifies it.

The examples given show that sensation is immediate and presentative; that it is a form of feeling connected with the bodily organism. The external cause of sense-impressions is the movable and vibratile condition of matter which directly acts on the ends of the sensory nerves, and causes an impression which is carried by the sensory nerves to the brain. We are now ready to study some of the formal definitions of sensation. 1. "Sensation is a simple mental state resulting from the stimulation or excitation of

the outer or peripheral extremity of an incarrying or sensory nerve." 2. "A sensation is the simplest psychical reaction against the nerve current caused by a physical stimulus." 3. More briefly, sensation is a state of consciousness resulting from the stimulation of a sense-organ.

Sensation—Attention.—Van Norden says: "The freshness and vividness of sensations are intensified by attention. An absent-minded person, though a lover of music, may lose the pleasing effect of the most beautiful symphony or aria through sudden distraction of attention to some wonted train of thought. Either painful or pleasurable sensations may be dulled or quite ignored by persistent distraction. Consciousness turns the yellow spot of its mental eye upon the sensation and it is seen more clearly." Distinct and clear sensations depend on attention. It is not enough that a sense-organ be stimulated. The brain centers must react; that is, the mind must attend. In short, attention must select the sensations that the mind wishes to use.

Sensation—Perception.—"Sense-impressions are the alphabet by which we spell out the objects presented to us." In order to grasp or apprehend these objects these letters must be put together after the manner of words. Thus, the apprehension of an apple by the eye involves the putting together the va-

rious sensations of sight, touch, and taste. This is the mind's own work, and is known as *perception*. The result of this activity, *i. e.*, the distinct apprehension of some object, is called a *percept*. Sensations become elements of knowledge only when the mind recognizes and uses them by referring them to some definite object in space, by localizing or externalizing them. That is, by grouping them. The grouping is called perception.

Sensation—Feeling.—Sensation, as the term is used in every day life, refers to the pleasant or the unpleasant side of sense-impressions. Feelings of pleasure and pain fall into two distinct classes. See FEELING, CHAPTER IX. Feeling, as sensation, arises immediately from a process of nervous stimulation, from the excitation of sensory or incarrying nerves. Feelings which arise in this way are called bodily feelings to distinguish them from feeling as emotions, or feelings depending on mental activity alone.

Sensation—Discrimination.—Sensations rise into clear consciousness only when they are picked out from other sensations by discrimination. Sensation is transformed into mental stock only when the brain reacts, only when it is selected by attention for the use of the mind. Faint and blurred impressions have little intellectual value, because they have only a weak assimilating power. This fact suggests method in

teaching. It suggests that the impression made on the pupil's mind by the telling teacher will soon pass away. It suggests that interest and energy on the part of both teacher and pupil should be seen and felt during the recitation. Passiveness on the part of the teacher soon begets passiveness on the part of the pupils. Example is contagious.

Sensations are merely the means by which objects in the external world become known to the soul. We *perceive* only when through conscious sensation we are made to know the existence of external objects. To the mind a thought, an odor, a flavor are psychical objects. The *self* regards the entire external world as objective. Anything which the mind cognizes is objective. To cognize is to know. We cannot know without knowing something as an object. In every state of consciousness there is an objective and a subjective element. That is, there is both a consciousness of an object as distinguished from *self*, and a consciousness of *self* as distinguished from an object. (Teacher will fully explain.)

Prof. James says: "Sensations are the first things in consciousness. They are the immediate results upon consciousness of nerve-currents as they enter the brain, and before they have awakened any suggestions or associations with past experiences. It is impossible to rigorously *define* a sensation; and in the



actual life of consciousness, sensations popularly so-called, and perceptions merge into each other by insensible degrees." "Sensation," says Dewey, "is the meeting-place, the point of coincidence of the self and nature. It is in sensation that nature touches the soul in such a way that it becomes itself psychical, and that the soul touches nature in such a way that it becomes itself natural."

Intensity of Sensation.—The greatest difference in the character of our sensations is that of intensity. The intensity of a sensation corresponds to the character of the motion which occasions it. The ultimate physical occasion of sensation is always some form of motion. The intensity of a sensation varies with the force of the stimulus. The sensation caused by a bright light is stronger than the sensation caused by a faint light. The sensation caused by a loud sound is stronger than the sensation caused by a soft sound. These illustrations show that the intensity of a sensation depends on the strength of the motion which occasions it, and the attention given the stimulus.

The physical stimulus of sensation is mechanical pressure of some kind. All bodies, whether solids, liquids or gases, are capable of exciting sensations of contact. The amount of stimulation required to arouse the soul to activity always depends on the attitude of the mind toward the exciting cause. A feeble

sensation closely attended yields a more distinct percept than a stronger sensation indifferently or passively attended. The value of all forms of mental activity depends on the character or kind of attention given the activity. This fundamental fact should be recognized in every school exercise.

Training of the Senses.—The senses are important factors in the development of the faculties. Mental growth logically precedes mental development. As knowledge takes its rise in sensation it is clear that the outer world exists for the soul, not wholly for the gratification of our desires. The senses are trained by a proper use of them. The eyes and the ears, the highest senses, are trained to a high degree of perfection by using them as instruments of discrimination. “Our senses become adapted to any use we choose to make of them and their value depends on ourselves.” It has been wisely said: “All men look upon the same world, but not with the same eyes or to the same purpose.” “The importance of the special senses depends on their possessing certain well-defined characteristics, whereby they are fitted to be signs or indications of qualities in external objects, as well as of the changes which take place in these. The sum of our knowledge of things is limited by the number of distinguishable characters among our sensations.”

Training the senses means the regular and sys-

tematic exercise of the senses with a view to making the sense-percepts acquired clear and distinct, and the efficient instrument in developing the conceptual and reasoning powers. The well-established fact, the easily proved fact, that "There is nothing in the mind that was not first in the senses," is sufficient argument for training the senses during the first years of school life. The teacher that does not believe in training the senses is wholly ignorant of the relation of the mind to the body, as well as of the relation that exists between the raw materials of knowledge, sensation, and the finished product, thought.

As education begins with the senses the training of the pupil should begin with the training of his senses. As the senses are developed before the reasoning powers they should be the first to be trained. The school offers many opportunities to train at least the three most important senses—sight, hearing, and touch. The apprehension of almost every object appeals to more than one sense; hence more than one sense should be appealed to whenever possible. The greater the number of senses that contribute to the percept, the clearer and more definite the percept. Bunyan says: "The town of Man-Soul has five gates, eye-gate, ear-gate," etc. Too many teachers approach or appeal to only one gate, the eye-gate.

Singing.—Singing exercises afford the teacher an

opportunity to train the ear to discriminate between the high and the low, the soft and the harsh in volume, and quality of voice. The education of the ear for music is slow. Noises startle the infant, but seem to please the growing child. "The more he is stunned, and the more he stuns others, the happier he seems." Singing, like speech, is a matter of imitation, and should be first learnt by the ear. The child speaks because he has heard others speak; he will sing from hearing others sing. After a time the notes of the diatonic scale should be introduced. Compayré is of the opinion that in some schools too much importance is attached to singing by note, and that thus the only purely æsthetic subject in our schools is degraded.

Not all the senses are equally important in an intellectual sense. Sight, hearing, and touch are the most important of the senses. Of these *sight* supplies the greatest number of percepts; hence no opportunity should be lost to train it. "The eye should be appealed to as often as possible. A child remembers what he sees much better than what he hears." "Learn by doing," was Froebel's maxim. Train the senses by using them. Activity is a necessity in sense-training as well as in intellectual and muscular training. The kindergarten offers abundant opportunity to train the pupil's senses.

Reading.—This exercise if not made mechanical by the routine teacher affords excellent opportunities to train the sense of hearing, the sense next in importance in an intellectual sense to the sense of sight. In the reading exercise wide differences in the volume of the tone should be first presented, and gradually the volume of voice reduced or lowered. The discrimination required to distinguish the different auditory impressions, the different degrees of emphasis given words and phrases, besides training the sense of hearing, also trains the will by demanding concentrated voluntary attention.

As the senses supply the raw material of knowledge it follows logically that the quality of the sensations is of prime importance. The school, therefore, should train the senses of the pupils. Pupils should be trained to see, to hear, to feel, to taste, to smell, for through these avenues they receive the material which the mind uses in acquiring knowledge. Each sense should be trained to respond promptly and fully to nerve stimulation. As perception depends on sensation it follows that the character of the percept depends on the quality of the sensations used and on the kind of attention given.

Map Drawing.—Map drawing, the most important feature of the work in text-book geography, is an excellent training of the sense of sight. Drawing maps

trains not only the eye, but the hand and will also. Catechism geography, the only kind of geography taught in too many schools, does not train the eye, the ear, the memory, the imagination, or the will. It chills feeling; hence weakens the will. We will yet have kindergarten and manual training departments in all public schools.

Drawing—Writing.—Both of these daily school exercises train the eye and the hand. The exercises in drawing in the primary grades should be limited to the drawing of actual objects—objects which the pupil can handle as well as see. These exercises are admirably adapted to the training of the muscular sense. Writing trains the eye in forming the letters of the alphabet, fifty-two letters, large and small.

Why is it that so many pupils fail in spelling? It is because they have not been trained to see; because the power of visualizing words has never been developed. Pupils must acquire correct images of words or they cannot recall their correct spelling. In the primary rooms the chief reliance for the correct spelling of words is on the sense of sight. Pupils would seldom misspell a word if teachers would train them to see the words on the printed page. They should be trained to see the silent letters, the syllabication, the accented syllable or syllables, then the word as a whole. Train the pupil to see clearly.

The correct pronunciation of words must come through an appeal to the ear. There are few, relatively speaking, who can give the six sounds of *a*. Many cannot detect any difference between two distinctly different sounds of a vowel. The defect is usually due to the fact that the ear has not been trained to discriminate between sounds. The writer cannot always tell "*Nearer My God to Thee*" from "*The Rock of Ages.*" The training of the senses during the first ten years of life is too far-reaching in its possibilities to be neglected by mothers and primary teachers. A methodical and persistent training of the senses should be begun in the nursery and continued in the kindergarten and in the lowest grades of the common schools.

As the senses supply the material of knowledge, it follows that they should be methodically and persistently exercised in the primary grades. Spencer says: "If the education of the senses has been neglected, all later education has about it something sleepy, blurred, insufficient, which it is impossible ever to make good again. The man, busy in practical life, in art and science, needs his own power of observation, for which reason it should be already developed in the child. Object lessons should not only be given in a way different from the one generally used, but should also be extended to a much larger circle of ob-

jects, and be continued to a much later age than is now done. They should not be confined to the contents of a house, but should include all that fields, woods, quarries, and the seashore offer. They should not cease with early childhood, but should be continued during youth in a way which gradually and imperceptibly leads to the investigation of the naturalist and the scientist.

With occasional exceptions the teachers of to-day do not train the child's senses. The kindergarten, when under the direction of trained and experienced teachers, does excellent work in the earlier training of children. The teachers in the other grades should continue the training begun in the kindergarten. The public school teacher should train the pupil to use his senses in acquiring vivid, clear impressions; then train him to give clear expression to his thoughts and feelings. Expression must accompany impression during the pupil's whole school and college course if he is to become in any true sense educated. Such training would be infinitely better for him than making him a passive receptacle for text-book facts. The primary object of education is a trained mind — a mind that can think clearly and comprehensively — a mind that can act instantly, not next day. Instruction that does not train pupils to think quickly, correctly, and courageously falls short of its well-established possibilities.

PERCEPTION.

We have learned that the mind is aroused to activity by the stimulus which reaches it from the senses. The act of the mind which refers sensation to an object in the outer world is called perception. Without sensation, however, the object could not be perceived. The first things that a child knows are the sense objects which impress his sense. These sensations the mind changes (we do not know how) into mental pictures called percepts.

Nature of Perception.—It is necessary at the outset to give a brief account of the method by which we acquire knowledge. It should be constantly kept before the pupil that knowledge is acquired. The pupil should be clearly impressed with the fact that mind is developed only by its own activity; that use strengthens, enlarges, and enriches. Perception is the process by which first-hand knowledge is acquired. The child observes sense-objects, receives impressions, and these impressions are elaborated into ideas. These ideas are mental pictures of single, concrete, unrelated things. All knowledge has this humble and personal beginning. From these simple facts it may be seen that perception is that stage of knowledge in which the function of discrimination predominates. (The teacher will explain this fact.)

The child's first lessons are object lessons. His earliest knowledge does not come through the use of words or from others. He is not dependent on others for his first perceptions, but acquires them through the active exercise of his own faculties. Through sensation he comes into contact with the outside world and perceives it. His first knowledge is of things brought before his mind through the use of one or more of his senses. Through the sense of sight he recognizes his mother, his nurse; through the senses of sight, hearing, and touch he recognizes his rattle, his bell, etc. This intimate relation between sensation and perception is sufficient reason for treating the two subjects in the same chapter.

Outward perception (there is also an inward perception caused by some form of mental activity alone) is the intellectual function through which we gain immediate knowledge of the external world. "The world of perception, with all the things that constitute it, is set over against the self." Perceptions are objective phenomena, something brought before the mind by the use of one or more of the senses. "The process of perception may be divided into two well-marked stages, the discrimination and identification of sense-impressions, and the conjunction of the present sense-impressions with reproduced images of past impressions." The examples illustrate these stages.

I see an orange and get the sensations of *color* and *size*; I drop it and get the sensation of *sound*; I smell it and get the sensation of *odor*; I put a piece of it in my mouth and get the sensation of *taste*; I explore its surface with my hand and get the sensation of *touch* and *temperature*. The mind combines these various sensations into one group, called a percept. Until the mind groups the sensations there is no perception. In this example each of the five special senses contributes something to the percept. In the exercise of each sense I perceived immediately; that is, I was immediately conscious of the positive existence of a phenomenon. (The class will give two or three more illustrations.)

I hear a bell ring. The vibrations set up by ringing the bell are carried to the ears, thence to the auditory nerves, and by the nerves to the brain, where the impressions are differentiated from other impressions and recognized as auditory impressions. So far I have only heard a bell ring. I have heretofore had many auditory impressions of various kinds. Many of these impressions I can distinctly recall. But the presence of this particular auditory impression causes me to discriminate it from the memory of other sounds and assimilate it with the sound of a bell. I now know that I hear a bell ring. I know more, for the auditory impressions of the present are supple-

mented by impressions of the same kind previously received, and by the aid of the mind I have a mental picture of a church building with a bell hanging in the spire. I now know I hear a church bell ringing.

Observation and experience prove that the process of perception does not go far before apperception reinforces it. That is, the child uses his sense-percepts in acquiring new percepts. He grasps new things with the help of old things. This fact aids him in acquiring new ideas, and also vitalizes and enlarges his old ideas. Clear ideas once formed are in no sense dead; they are living powers that help us in acquiring new ideas. This every-day fact is very suggestive to the teacher who believes that mind is a progressive development, and that "Gifts do not enrich." The value of the old ideas in "taking in" or apperceiving new things depends on their vigor and clearness. A little thinking shows that all the higher intellectual processes are involved in the formation of clear percepts. Clear percepts depend on the pupil's habits of study and the apperceiving power of the mind. See APPERCEPTION, CHAPTER VI.

Observation and experience prove that sense-impressions cannot give us definite knowledge without the help of our past experience, without bringing to bear on the new idea the interpreting power of old ideas. Knowing a new thing means the revival and

use of old things. Knowing is coupled with a process of thought, *apperception*, in which the new perception is "taken in" through the use of old ideas. One cannot interpret a new idea without thinking, and thinking means comparison and classification. The teacher should keep constantly in mind the two facts that sensation is not knowledge, and that the value of percepts depends on their depth, clearness, and vigor. Observation that does not involve attention and thinking is valueless in an educational sense. Flitting passive attention to new ideas cannot yield reliable perceptions. (The teacher will explain.)

When studying attention we learned that a sensuous presentation gets its meaning through its connection with past experiences. That is, the mind reads itself into the sensation. What is retained and revived depends on the perceptive and apperceptive power of the mind. Perception gives definiteness to individual objects; apperception gives character to new ideas; retention gives character to the mind, to the *self*. An idea is not held in the mind as a dead thing; it reacts on the mind, and thus modifies or alters the nature of the mind. Without attention the new idea cannot be taken into the mind, and without apperception it would not be recognized.

Perception is the process that reaches out after the fullest and richest knowledge of individual objects.

Perception gives us definite ideas of individual notions. Sensation only arouses mind; mind perceives. Take as an example the visual perception of a tree. The sensations of light and the muscular sensations caused by moving the eye from one point of the tree to another must be combined by simultaneous association before they can be referred to an object. These present sensations must be supplanted or reinforced by all previous experiences involved in the perception of a tree. This and more too before we have the perception of a tree. So far we have only consolidated sensations. The interpreting power of attention must come in and translate these sensations into a definite meaning—a tree.

In every perception the mind makes its contribution from past perceptions. The senses furnish only the raw materials of knowledge. A reflective study of this introductory matter shows that outward perception is immediate knowledge of an external object, and that it has only two factors—a subject knowing, the *self*, and an object known, the thing *perceived*. We will now examine some formal definitions of perceptions. 1. “Perception is the process of localizing sensations and referring them to definite objects.” 2. “Perception is knowledge of actually present and particular things or events.” A careful study of the definitions of perception shows that it is the least de-

veloped and the most particular form of knowledge. The objects perceived are "The world of senses." The sensations are not perceived, but something beyond them is. What is it that perceives? The *self* perceives. What is perceived? It is something in the outer world which has been brought before the conscious self by the stimulation of one or more sense organs. Where does the perception occur? It occurs in the brain. A *percept* is the result of an act of perception.

Until aroused by sensation the mind is comparatively passive. It begins its work by combining the sensations which it selects for use into bundles or percepts. Sensation is the indispensable prerequisite of knowledge. When a sensation is received by the mind, the mind refers it to some object capable of producing it; as, for example, certain vibrations strike my nostrils, producing a sensation or odor. My mind immediately connects the sensation with previous sensations—the outside world and to some object—a bottle of cologne or an apple. Receiving sensations and referring them to certain objects in the outer world brings the object producing the sensation immediately before the mind. The result or impression made on the mind by bringing an object before it through the use of the senses is called a *percept*. A *percept* is the direct result of acquisition

through the senses, the complete psychical product formed by localizing sensations in time and space.

A percept is a product of the mind, and is regarded as an object. It may be a concrete, visible thing or an abstract, invisible thing. To the mind an abstract moral maxim is a thing, an object. The term *perception* has a wider meaning than is usually given it in elementary text-books on psychology. Perception is in its wider, truer sense that mode of experience by which we become acquainted with relations. A few simple illustrations will suffice to show the wider meaning of the term. I taste two strawberries and learn that one is sweeter than the other. In this experience I perceive the relative sweetness of the two berries. I see two horses in the field and see that one is larger than the other. In this experience I perceive the relative size of the two animals. I hear two notes struck on the piano. The interval between them is a major third. In this experience I perceive the relative pitch of the two notes. The relative *sweetness*, the relative *size*, the relative *pitch* are the real objects of perception in these experiences.

Elements of Perception.—The mind by observing a repetition of external impresses learns to refer the sensations to impacts and causes. Something in the brain acts on the sense impressions and refers them to external space and unifies them. An illustration

will make these statements clear. I experience a sensation through the sense of hearing. Intuitively I believe that the sensation is due to some external cause, and from the recollection of similar sensations I believe the cause to be the vibration caused by ringing a distant church bell. I then construct a complete mental picture of the bell as known through the different senses. The elements of perception are sensation, reference, and grouping. (The teacher will illustrate this fact.)

Sensation — Perception.— We will now briefly notice the distinguishing difference between *sensation* and *perception*. Sensation is the simple, psychical reaction against the nerve current caused by physical stimulus. Perception is the reference of sensations outwards to some object; it is a knowledge-giving process and is allied to the intellect. Sensation is a simple mental state, the simplest mental state. Perception is a complex mental state. Sensation is only presentative. Perception is presentative or representative. Sensation is a passive state of mind. Perception is an active state of mind. Sensation is the consciousness of a subjective feeling, pleasant or unpleasant; perception is the consciousness of an object distinct from the self.

The clearness of a percept depends on the strength of the sensations and the character of the attention

given during its development. The teacher should remember that mental power does not depend on the number of ideas in the mind, but on their clearness, on their power to assimilate and use new impressions and ideas. This well-established fact suggests definiteness in teaching, frequent reviews, and ample illustrations on the part of the pupil. Usually a pupil gets only a superficial view of a subject the first time he goes over it; hence reviews are necessary. Methodical and vigorous reviews deepen and perfect impressions, but a routine reiteration of text-book facts is worthless. (Why is mere routine valueless?)

Perception—Attention.—Only clear and full perceptions carry with them interest, and feeling, and leave lasting impressions. An object may be seen many times before it is rightly seen. A percept becomes fully developed and matured only through repeated acts of perception. Experience verifies this fact. Every time we meet a friend the percept of his face and expression is deepened and perfected. Repetition usually deepens impressions; hence the value of reviews in school work. It usually requires the cumulative effect of many perceptions of the same object to develop a clear percept. It is through exacting reviews that the pupil acquires clear ideas of rules and principles and disentangles his vague and mixed impressions.

The external world is non-ego. It is made up of particular, separate things and events, which when perceived exist in space. I open my eyes and perceive a room in which are chairs, tables, books, and pictures. I perceive each of these objects as a distinct thing. Every perception is an individual perception, and the perceived world is a *present world*. The *perceived world* is a more vivid and distinct world than the *remembered world*. The distinctness of the *remembered world* depends on the depth of the impressions made in the brain when the world was a *present world*. That is, the distinctness of the remembered world depends on the distinctness of the present world. (Teacher will illustrate.)

The perception of an object, as an apple, is a complex mental operation. How does the child apprehend the object *apple*? He combines the sensations that reach his mind through the senses into a whole. It is thus seen that the individual notion or percept is the complex of sensations, and that perception is the first step in knowing. Sensations do not drop into perceptions as pebbles drop into a brook. Only those sensations that interest us are used by the mind in acquiring percepts. From what has been said and illustrated there are two parts in knowing an object: first, there must be an excitation in some part of the nervous system; second, the contributions from the

nervous system must be received and interpreted by the mind. (Teacher will explain.)

Knowledge begins with the perception of individual notions. The sum is this: To perceive an object through the senses is to combine the sensations into a whole and regard them as qualities of an object. The same object of perception seldom leaves behind precisely similar ideas in the minds of different people. Of the same face or landscape the poet will acquire a different image from that of the botanist, the painter a different image from the geologist, and the stranger a different image from one who had perceived the same object before. As the mind's power to perceive is quickened by experience, it follows that the same observer will often acquire different percepts of the same object. The character of the perception depends on the character of the sensations; the character of the sensations depends on the character of the stimulus which the sense organs transmit, and the attention given the stimulus.

Perception is not merely a passive receiving of impressions from without, for the mind is not a tablet on which the outer world engraves itself. Perception is mental activity. In the moment of perception the mind is thoroughly active, transforming physiological stimuli into percepts. Indeed the more concentrated and active the mind during the moment of percep-

tion, the more perfect and adequate the percept. This fact bears directly on the work of the teacher. Without interest on the part of the pupil during the recitation the instruction of the teacher is wholly in vain. The inattentive pupil is an absent pupil. He might as well be on the play-ground as in the class if he is not interested in the class. If his recitation is not an experience it is a soulless, worthless formality. Nine in ten of the teachers who fail can trace their failure to their inability to secure and retain the attention of their pupils during recitation. The power to hold the attention of others is both a gift and an acquisition. Teacher, you must acquire the power to interest your pupils if you would instruct them.

Experience proves that memory can reproduce only the sense-impressions which were clearly perceived. Hence retention and reproduction depend on perception, and perception depends on attention. The impression made on the brain by a single perception usually becomes indistinct and characterless in time. The impression made while the mind is indifferent or while it is attempting to attend to more than one thing is so indistinct that it has only weak assimilative power; it is almost worthless in an educational sense. No impression is made on the brain without attention and interest for a period of time. Time is an important factor in forming percepts. Nerve

excitation must continue long enough to supply the mind with sufficient raw material, sensations, for a complete percept. That is, the attention must be focused on the object in consciousness long enough for the mind to combine the sense stimuli.

A hasty glance at a beautiful picture or landscape makes only an indefinite impression and leaves behind it only a blurred and fading picture. To the inattentive, wandering mind the purest, sweetest, and most inspiring strains of music make only a passive impression and leave only the occasion for memory. "A burning coal may be moved so quickly as to appear like a circle of fire, when in reality it is but a single point." So it is with every sense experience. Concentrated attention for a time is the one essential element in every form of mental operations. Impressions must be interpreted before they have meaning, and interpretation requires time and attention. If the new impression does not interest us, and does not receive attention, it lingers awhile in the margin of consciousness, then passes away forever. It is, therefore, clear that perception depends on attention. The apperceptive power of the mind is brought into use only through voluntary attention.

Perception—Concentration.—The larger the field of consciousness over which the attention is spread, the less intense it will be on any point in that area.

It is evident that there may be so many objects in the field of consciousness at the same time that only the shadow of an impression of each is left in the mind. This fact clearly suggests concentration of effort on one thing until that thing is mastered. Shotgun teaching does not encourage the study habit, for vague and indefinite impressions are not accompanied by mental pleasure or profit. Study is a pleasure only when the mind is concentrated on one thing. The application of the foregoing facts to the work of the teacher is very apparent. It is clear that the value of a school exercise depends almost wholly on the state of the pupil's consciousness. If he is trying to attend to more than one thing, the recitation will be comparatively fruitless. The impressions will be so indefinite that they will not remain long in consciousness. (Teacher will illustrate.)

Instruction cannot begin until the teacher secures the attention of the class. To know how to secure the attention of a class and how to retain it is the first condition of success in teaching. Every teacher knows how hard it is to get the attention of some pupils, and he should know that if he is to be of any service to those pupils he must get their attention. It is futile to talk to a pupil who gives only spasmodic attention. Our actions are vigorous and precise in proportion to the kind of attention given them. Our

feelings are pleasurable or painful in proportion to the attention we give them. A severe bodily injury will not be felt for a while if the attention is focused on something else at the time. On the other hand, a trifling irritation, the prick of a pin, grows into something very disagreeable if the attention is focused on it. The teacher will give an illustration of this truth. Pupils will also give an illustration.

That the mind has the power to concentrate its energies on a single object is no longer denied. The degree to which the mind can be focused on one thing varies according to the training the mind has received; but all persons, except the idiotic and the deranged, possess the power of concentration in some degree. When a motive is presented the mind has the power to detain that motive, to hold it in the focus of consciousness, and exclude other elements wholly or drive them into the margin of consciousness. If this statement were not true education would be impossible. (The teacher will illustrate the fact of concentration.)

Some pupils perceive more readily and clearly than others. This fact can usually be traced to their superior habits of attention. Nothing distinguishes one pupil from another as much as his exceptional power of attention. What is often called genius is but a little more than attention and labor. The power to make percepts readily and retain them depends on the

habit of attention. The tendency of all minds is to retain all percepts, but experience proves that only those which were acquired with attention, interest, and feeling are retained. An inattentive, restless pupil seldom acquires a distinct and lasting percept. Attention, interest, and feeling on the part of a pupil accompany every profitable recitation. Without the enthusiasm of competency and purpose on the part of the teacher, and undivided attention on the part of the pupil, the recitation is a traditional, formal farce. We cannot observe or recall our observations or classify them without attention.

Perception—Habit.—Power to perceive quickly and accurately is a growth; it falls under the law of habit, and can be acquired only in one way—through a methodical training of the special senses. One sees only what he has been trained to see. In passing a show window, filled with different objects, one may see only one or two objects, while another will see and be able to describe several objects. At a concert or opera only those whose ears have been trained to perceive fine distinctions in the quality or volume of sound are competent to pass intelligent judgment on the performance. One hears only what he has been trained to hear; he hears most when he has acquired the habit of hearing. The same laws govern the acquisition and value of all sense perceptions.

Training ends in habit or it has little value. Only habitual actions distinguish the purposeful man from the wanderer. A habitual action is an acquired action, a habit. It is clearly the teacher's duty to train his pupils to perceive quickly and accurately. This he can do only when his personal magnetism and tact command and hold their attention. Children should acquire the habit of focusing their attention on what appeals to their minds through the senses, and thus acquire the habit of forming ready and reliable perceptions. When attending becomes a habit perceptions will be clear and definite.

The frequent repetition of the same kind of a mental act tends to lessen the amount of conscious effort required to perform it. Perception is no exception to this general law of habit. It is a well-established fact that the frequent repetition of the same kind of a mental act facilitates the acquisition of a similar or more difficult act. The student who has pursued a thought often and viewed it from various positions is enabled to comprehend a similar thought more quickly and pursue it further than one who has never entertained the thought. On the other hand, a day laborer who uses the powers of his nervous system mostly in manual labor, will without fatigue perform a physical labor that would be impossible for the student or professional man.

The importance of early training in the formation of correct mental habits cannot be overrated. Comparatively few habits are acquired after the age of twenty. The teacher can greatly aid the pupil in the acquisition of correct habits of study by using correct methods of instruction. Right methods of instruction are based upon the laws of habit. See **HABIT, CHAPTER X.** Aristotle said that more men are made bad and ignorant by education and habit than by nature. Clear concepts are derived from clear percepts, and clear percepts depend on the habit of attention.

One Thing at a Time.—It is evident that the fewer the objects in the field of consciousness the clearer will be the impression of each, and that the clearest impression will be developed when the attention is concentrated on one object. The teacher should bear in mind that states of consciousness are exceedingly complex; that is to say, a number of things may be in one's mind at the same time. Even in church during the sermon there are often undercurrents of thought, trying to get into the focus of consciousness. One may read a book and listen to a piece of music at the same time. Of course such divided attention is a strain, and the effort to do the two things at the same time does not get the best of the book or the music. Only during the most concentrated attention is the field of consciousness wholly free from

would-be intruders. All that the average person can do is to keep the undercurrents duly subordinate, to keep them in the margin of consciousness. We are usually both conscious and sub-conscious at the same time. (Teacher will explain this fact.)

Individual Notion.—One main point to be considered in teaching is the fact that knowledge starts with the percept or individual notion. Presentative knowledge is of individual objects. Representative knowledge may be of an individual object or of a group of like objects. The individual notion may be a thing of sense, a relation, not dependent on form, or a purely intellectual truth. For instance, a boy gets a notion of the object *apple* through the senses; of a noun in the nominative or objective case through the relation of one word to another, though the form of a word does not suggest the relation; of an intellectual or moral truth through an inner or spiritual perception. An inner observation is a perception. By means of inner perceptions we recognize abstract truths, moral and social relations. What cannot be perceived through the outward senses must be spiritually perceived through the inner senses.

The senses furnish the material which the mind uses in acquiring the individual notion or percept. An illustration or so will suffice to establish this fundamental fact. Looking about my writing desk I

perceive through the sense of sight a book, a picture, an inkstand, and a pen. Each of these is an individual notion or percept gained through the sense of sight. In a similar manner, by passing through a room in the dark one may get individual notions of various things through the sense of touch. He may get an individual notion of a chair, a stove, a lamp, a desk. Through the sense of hearing he may get an individual notion of a piece of music, the song of a bird, the barking of a dog, the ringing of a bell. Through the sense of smell he may get an individual notion of the scent of a bottle of perfume or a basket of apples. Through the sense of taste he may get an individual notion of the flavor of an apple or peach. Each of the senses, aided by the imagination, may give an individual notion or percept.

Generally more than one sense contributes to the individual notion. It cannot be said that a child can get a complete, individual notion or percept of an apple through one sense. Through the sense of sight he gets only the color and the shape of the apple; through the sense of smell he gets only the odor; through the sense of taste he gets only its flavor; through the sense of touch he gets only the smoothness or roughness, and shape. Hence he cannot get the idea or individual notion *apple* through the use of any one sense. It is easy to see that after each

of these senses has sent its report to the mind that there remains something for the mind to do. The mind must combine these reports into a whole and give the whole a name to distinguish this particular group or combination of sensations from the group gathered from an orange in the same way. Only then can a child say "I have perceived an apple." Although the mind is absolutely dependent at the start on the senses for the material which it uses in acquiring knowledge, it finally gets a long way from sensation in judging and reasoning.

Inaccurate reasoning is chiefly due to imperfect percepts. Hazy percepts cannot give rise to distinct ideas. Indistinct general notions lead to inaccurate judgments, to incorrect conclusions. It is as impossible to build a strong and substantial house upon a sand foundation as it is to erect a substantial educational edifice upon incomplete and inaccurate perceptions. The substantial building must have a *rock* foundation; the trained intellect must have *trained* sense-perceptions for its foundations. The trained teacher will endeavor to help the pupil to build firmly by requiring him to use his senses in acquiring an ample stock of well-developed percepts.

A teacher cannot give a pupil anything. All that the strongest teacher can do for the brightest pupil is to help him to help himself. Knowledge is not a

gift; it is a personal acquisition. The value of the teacher's services depends on his ability to train his pupils to think. Any one can hear pupils recite facts in the language of their text-books. Any uneducated, untrained man or woman can compel the average pupil to stuff himself with definitions, dates, and rules. The art of teaching consists in training the pupil to rely on himself, to realize himself through his own efforts.

Time weakens impressions. This fact suggests reviews in school subjects, especially in the primary grades. Reviews aid retention by reinvigorating the fading impressions. Reviews also aid retention because they usually enlarge and extend the pupil's understanding of the subject. What we understand is related to past acquisitions and is held in memory by association. Impressions once associated with other impressions are apt to survive. This fact should be ever present in the method of the teacher. If the pupil would acquire lasting impressions he must *will* the intruding images floating around in the margin of consciousness to disappear, and focus his mind on the central thought.

Reviews.—As experience proves that many perceptions of an object are required to yield a fully developed percept, it follows that the cumulative effort of frequent reviews of school subjects is required to

yield a clear idea of the principle involved. The review lesson offers the teacher the best opportunity to impress his pupils with the importance of thoroughness and the value of concentrated attention. It offers the teacher the best opportunity to impress his pupils with the fact that they often recite much they do not understand. It offers the teacher an opportunity to compel the inattentive pupil to exhibit himself, and thus impress him with the value of attention. The pupil's ability to illustrate in his own language definitions, rules, and processes is the teacher's only measure of the pupil's knowledge of the subject. The memory recitation of a principle should always be followed by one or more original illustrations by the pupil or by the class.

A good method begins with presentation. That is, knowledge begins in the senses; hence training the perceptive powers is training all the powers of the mind. This is true because the value of representative knowledge depends on the character of the representative knowledge. The teacher should ever bear in mind the psychological fact that memory, imagination, and association of ideas depend on perception. In short, all mental activities are exercised in perception. Assuming that these statements are true, one can readily see that a good method passes from the individual notion to the general notion.

A good method gradually advances from the easy to the more difficult, from the simple to the complex. The human mind, like the human body, is developed gradually. There are no sudden leaps in nature's processes. The pupil that has a clear conception of simple addition has but little more to learn in subtraction; the pupil who has a clear conception of simple proportion has very little more to learn in compound proportion; the pupil that has a clear idea of a lake sees the ocean; the pupil who has a clear idea of the simple sentence has only a little more to learn to comprehend the complex sentence. Teacher, build rock foundations.

A good method presents wholes first, then parts. That is, a good method passes from the individual notion to parts of that notion, from unity to any number of times unity or to any fractional part of unity. A good method makes knowledge definite. This means that what the pupil learns he should really know. The teacher should never assume that the pupil knows. Many pupils recite text-book statements, definitions, and rules correctly and fluently, but cannot illustrate their meaning or apply them. To test the pupil's knowledge of the subject question him. Some one said long ago: "The art of questioning is the art of teaching." The methods in use in many schools give the pupil a vast accumula-

tion of facts, unclassified and undigested. These facts, like seeds in a dry box, may be retained, but they do not grow. The mind, like the body, is governed by the universal law that use gives still greater use. The root weakness of most teaching is the fact that it ends with impressions. The pupil is not required to assimilate, to give meaning to his impressions. (The teacher will explain.)

Look Within.—A teacher should look within for the inspiration which inspires his pupils. He should rely more on his personal power than on text-book; he should rely more on sound methods of instruction than on devices. If he would train and discipline the minds of his pupils his instruction must accord with the laws of mental development. Education is governed by laws. The manner in which a pupil acquires knowledge depends on the method of the teacher. "The act of acquiring knowledge," says White, "is of more benefit to the child than the knowledge acquired." A child is made a man by education. School education lays the foundation; self-education erects the building. A teacher who does not feel that he is being self-educated is intellectually and morally unfit to teach others. Only those that are morally and intellectually awake can morally and intellectually awaken others, young or old.

TEST QUESTIONS ON THE CHAPTER.

1. Define sensation and give an illustration.
2. By what means is the mind aroused to activity?
3. On what two things does sensation depend?
4. In what way are objects in the external world brought into contact with the mind?
5. On what special sense does the correct spelling of words usually depend? -
6. What must accompany impression to give it life?
7. Give two definitions of perception.
8. What is the result of a perception called?
9. Distinguish between sensation and perception.
10. Does perception invariably follow sensation?
11. Tell how the percept of a material object is formed.
12. Is perception an active or a passive state of mind?
13. On what do the clearness and the depth of a perception usually depend? *
14. On what does the value of a school exercise depend? *
15. How may perceptions be prevented from fading out?
16. Name one main point to be considered in teaching.
17. What is meant by individual notion? Illustrate.
18. Define percept and show how one is formed.
19. On what does the distinctness of a percept depend?
20. How may imperfect percepts be perfected? Illustrate.
21. Name the important conditions of perception, physical and psychical.
22. In what way are other mental activities affected when training in perception has been neglected?
23. In the school life of a pupil what is more important than text-book facts?

CHAPTER IV

MEMORY

In the preceding chapter we learned that the act of perception is momentary. There would be no enduring knowledge of things if we could not retain and reproduce sense cognitions. Memory removes one limitation from knowledge as it exists in perception; it removes the limitation of the present. While perception is the primal source of knowledge it has no past or future. Perception is confined to what is directly and immediately in consciousness. "The world of knowledge as it exists for memory is a world of events which *have happened.*"

One's mental stock is vastly greater than what is present in his mind at any time. This fact is due to memory, to the power of the mind to revive past experiences. There is in your mind, held there unconsciously, in a manner no one can explain, a multitude of facts and experiences of which you are not aware, which you have not thought about for days, weeks, months, or years, but which you can again bring into consciousness. A suggestion is all that is needed to start the train of facts or events that has been appar-

ently dead during a long past. An example will illustrate this fact and aid us to see the relation between perception and memory. This is Christmas. Now think about what you did last Christmas. Call on memory to revive the experiences of one year ago, and you will have images of things you have not had in your mind since that holiday. (The teacher will illustrate this fact. The class will also give two original illustrations.)

This picture is a mental picture, called an image, of things that were perceived one year ago. It is a copy of what you then perceived. It is not as vivid as the impression made at the time through the senses, for time weakens all impressions. During the time which intervened between the two holidays the mind *held* the sense impressions, (no one knows how) and was ready at any time on the slightest suggestion to revive the impressions, or, in other words, to live over again in memory the scenes of a year ago. "The elements of knowledge, collected by the senses, presented to and seized by the attentive mind, would still be practically valueless were there no possibility of retaining, modifying, moulding, recombining them, and reproducing them at will." (The teacher will illustrate the perception of an apple; the class will show in what particular respect the percept differs from the memory picture.)

From what has been stated and illustrated memory may be defined: 1. "Memory is the re-presentation of a past experience." 2. Memory is the name of the mental act which revives the past. 3. "Memory may be defined as knowledge of particular things or events once present, but no longer so." It must be obvious to the most casual thinker that the power to revive or recall a past experience depends chiefly on the character of the experience. The ability to revive the mental image of an object depends on the completeness and adequacy of the original percept. The term memory is applied to those mental acts which are involved in the recalling or re-presentation of what has faded out of consciousness.

Once it was generally believed that our past experiences had a sort of private existence, an existence apart from the conscious activity of the mind; that the mind is a receptacle or chamber into which facts may be stored, and from which they may be reproduced or recalled. Not so. What we remember depends on laws controlling the association of ideas. When the mind ceases perceiving the perceptions cease to exist; only the condition of the brain cells remains to mark the perception. All else ceases to exist with the original experience. Memory is not limited to sense perceptions. The emotions and fancies of the mind may be recalled.

Order of Memory.—The natural order is: percepts, retention, images. In acquiring a percept the mind acts; it combines sensations, and distinguishes them from other combinations of sensations previously acquired. In reproducing the percept as an image the mind also acts. That is, perception and reproduction are active mental states. The retention of percepts is a passive condition of mind, or rather, is a condition of the brain. As the mind can reproduce only what has been registered and retained in the brain, it follows that memory implies three well-marked stages: first, apprehension; second, retention; third, reproduction. To apprehend an object is to fix it in memory; to retain an impression is to hold it in memory; to reproduce an impression is to bring it into memory. "When the mind acts in such a way that it records, retains, and restores the ideas, gained by its own activity, it is said to perform an act of memory." (Teacher will illustrate.)

Retention.—By retention is meant a brain condition, not a storehouse. Images are not retained, but the brain condition which makes their reproduction possible remains, and may be brought into use again by an exciting cause. For the time the image passes out of consciousness; it does not exist anywhere. The brain, like the cylinder of a phonograph, retains the conditions which make reproduction possible.

The cylinder of the phonograph does not retain the sound of the voice, but the condition made by the force of the sound on the cylinder. There can be no doubt that certain properties of the brain-substance furnish the physical conditions of memory images. (Teacher will explain.)

Retention is dependent on a healthy condition of the brain cells, the attitude of the learner's mind during perception, and the teacher's method of presenting the subject. If the learner is attentive and interested, and the teacher's method is in accord with the well-established laws of mental development, there will be little need to pay special attention to the devices and rules for the cultivation of the memory. As retention depends on the depth of the impression made in the brain cells, the fading tendencies of impressions may be arrested by reinvigorating them with new impressions. Memory is most surely cultivated by developing clear percepts.

The power of the brain to retain impressions depends in a large degree on the physical condition of the brain, and on the force with which the impression is stamped on it. The power of the mind to reproduce an impression depends in a large measure on the number of attachments or associated ideas by which it is retained. Hence, training the memory is training in perception; and in finding as many links of

association as possible. If the pupil expects to revive what he perceives he must perceive it just as it is. If the original perception was what it should have been it will not only become more fully developed by subsequent uses, but it will gain in apperceptive power by interpreting and assimilating new impressions. The first step, then, in remembering anything is to get it into the mind in the right way, and that way is to perceive it correctly. If that is thoroughly done the first step in cultivating the memory is taken, and it needs no special training. Teacher, remember that the cultivation of memory begins with perception, and that recollection depends on the laws which associate ideas.

Memory—Perception.—The most vivid impressions grow dim and often fade out. As every impression is weakened by time a single perception rarely suffices for a lasting impression. “Interest is rarely so keen as to be able to dispense with a number of repetitions. On the other hand, no number of repetitions will avail if there is no interest taken in the subject, and the thoughts wander.” Unusually several acts of perception are required to perfect and give permanence to a perception. The number of perceptions required to make a lasting impression depends on the habits of the pupil and the method of the teacher. Indistinct perception lies at the root of

bad memory. An inattentive, restless, passive pupil cannot acquire permanent perceptions. If the pupil's mind is preoccupied the most effective instruction is lost to him. Only clear-cut images and well-defined feelings can be revived by memory. The mind can recall *real* experiences only. The vividness of an impression is due to concentrated attention and interest.

The character and permanence of a perception depend on the attitude of the mind during the perceptive process. Experience, the greatest of teachers, asserts that the things we remember are those things to which we gave voluntary attention. In short, the permanence of an impression depends on vigor of attention, interest, and feeling. The non-voluntary attention, accepted from the majority of pupils by too many teachers, is a poor substitute for the voluntary attention, born of interest. If pupils are permitted to become inattentive or indifferent during recitation, the impressions they receive will be so indefinite that they cannot recall them the next day. The mind cannot retain what it did not entertain. The depth of the impression made on the brain cells usually determines the length of time an impression will be retained. The registration of an impression does not always mean retention. The permanence of a registration depends on the character of the registration. The impression made is often so feebly registered (as

in the case of the inattentive pupil) that it will soon fade out. It is clear therefore that registration does not necessarily imply retention.

A feeble perception has little educational value, for it has little or no apperceptive power. What we recollect, recall, and use depends on voluntary attention and the power of the brain to retain impressions. Not all minds are equally retentive. Many pupils who perceive quickly forget readily. The sum is this: The development of mental power, the value of mental power, the value of mental effort, the trustworthiness of memory depend as a rule on interested, voluntary attention. "Attention," says Joseph Cook, "is the mother of memory, and interest is the mother of attention. To secure memory secure both her mother and her grandmother."

From what has been said it is evident that all the processes of education are dependent on perception and memory, for what we cannot recollect we cannot use for any intellectual purpose. What we recollect depends on how it was perceived. This is a school-room fact of great importance. As memory does not create, it follows logically that the ability to revive an experience depends on the character of the experience. That is, the ability to recall a fact depends almost wholly on the circumstances of its acquisition. Interest at the time of acquisition is essential to the

durability of knowledge, for we attend only to that which interests us.

The tactful teacher will lead the pupil to see the relation that exists between perception and memory. He will lead him to see that he must perceive this or that just as it is if he ever expects to use it again. He will lead him to see that the power of the mind to recall a fact depends on how the fact was acquired. That is, retention depends on the method of acquisition; on the receiving and assimilating power of the apperceiving ideas already in the mind. Memory means getting facts into the mind in such a way that they can be gotten out again when they are needed. If the original perception of an object was what it should have been, deep, clear, accurate and comprehensive, the result of interest and attention, memory will take care of itself.

In all that the pupil does in school he should be fully awake. It is the teacher's duty to awaken him and keep him awake. To keep him awake requires more enthusiasm on the part of the teacher than is exhibited in many schools. To awaken a pupil to the value of his opportunity requires more tact and purpose than is usually exhibited by the teacher who spends his mornings and evenings reading law or medicine. To arouse the mind, to quicken the perceptive faculties of the average pupil, requires meth-

odical persistence on the part of the teacher. It requires the whole of cultured men and women. Half-heartedness never aroused a sleepy pupil.

Association — Recall.— We recall only what is held in memory by association. Ideas are always associated. An isolated idea cannot remain in the mind, hence the association of ideas is a condition of memory. Memory depends chiefly on apprehended similarities. A little thinking will make this important, psychic fact clear. That is, introspection shows that “Present states tend to revive their like among previously recurring states.” As memory is not a special faculty and depends for its existence on apprehended similarities, occasionally on the association of ideas by contiguity or by contrast, it follows that the greater the number of similar points between the newly apprehended idea and the group of apperceiving ideas, the more readily will the new ideas be assimilated and the more easily recalled. This statement is a self-evident truth and suggests that the teacher should strive to associate a new lesson or truth with those facts already in the pupil’s mind, by showing the pupil how much the new lesson or truth is like the last lesson or an old truth. Read APPERCEPTION, CHAPTER VII also *A Pot of Green Feathers*.

Memory — Image.— It is a well-established fact that nothing is remembered which is not associated

with what is in the mind. The fact must have some point of association or it will not stick. Memory is a natural outgrowth of perception. In perception the senses do not form the percept alone, but are aided by what can be brought to bear of past experiences. In the perception of any object, as a horse, there are involved all the perceptions which one has had of other horses. That is, every perception of an object is modified by every previous perception of similar objects. Memory thus enters into perception, yet depends on it. Memory, like perception, is a process of construction.

Memory recalls past experiences; hence memory images are wholly ideal. "The object of memory does not exist as a thing in space, but only as a mental image." The apple which I see is one really in space in the present; the apple which I saw yesterday exists only in the form of an image in my mind. The perceived apple is a solid, real, tangible apple; the remembered apple has no such properties; it is wholly an ideal apple. "The memory of the color red is not red itself, nor is the memory of the odor of a rose fragrant. It is thus seen that memory extends knowledge only one step beyond perception; that perception deals with real objects, which exist in space, and that memory deals with ideal objects, objects which are wholly mental products."

Image—Percept.—An image is the mind's copy of a percept and does not depend directly on time and space. An image is a percept reproduced by memory. The difference between a percept and an image is the difference between the impression made on the mind by the presence of an object and the mind's picture of it when the object is absent. The value of the image depends on the distinctness of the percept. However distinct and complete the percept, the image is always less distinct and complete. As the copy of a photograph is not as distinct as the original, so the image is not as distinct as the percept. The chief merit or excellence of an image consists in its distinctness or clearness. Percepts and images are psychical objects; boys and books are physical objects. The former are seen by the mind, the latter, by the eye.

In what way does this discussion of the differences between a percept and an image interest the young teacher? In what way can he use the knowledge he has acquired by comprehending how percepts and images are formed and the difference between a percept and an image? The answers are obvious: First, the teacher must have definite ideas in regard to the results of mental operations. Second, the discussion will lead the young teacher to see the dependence of the image-making power of the mind on the per-

ceptive power, and impress on him the dependence of one mental act on another. It will also help him to see that the images of memory are weaker than percepts; that repeated perceptions are required to prevent the memory image from fading out entirely; that reviews are necessary in school studies. Percepts, though the product of the most elementary processes of mental growth, supply the material for the higher processes of thought.

Clearly developed percepts make definite images possible. Only distinct images aid in acquiring new knowledge, because new objects and new thoughts are interpreted in only one way, through the apperceptive power of the impressions already in the mind. Clearly developed percepts aid in forming prompt and reliable judgments. Only distinct percepts assure clear memory pictures. This universal, mental fact should ever be present with all who seek to train the minds of the young. The aim of school training is mental power, not text-book facts. The mind of the pupil that has been drugged and deadened by the mechanical recitation of text-book facts becomes a passive receptacle for all time. Parents and teachers are chiefly responsible for the passive, mental condition of the masses.

Perception—Recollection.—The perception of an object and the recollection of it are mental states dif-

ering widely in kind. The perception of an object is attended by sensation; the recollection of it is not attended by sensation. Perception relates to a present external object; recollection relates to an object once present in consciousness, but which is no longer present. Perception is a *vivid* state of consciousness; recollection is a *faint* state of consciousness; one is real, the other ideal. The character of the ideal depends upon the character of the real. That is, the trustworthiness of the recollection depends on the adequacy of the perception. (Teacher will explain.)

Memory—Interest.—In reviewing our own lives we find that the experiences and events which we can most readily recall are those experiences and events which interested us or in which we had a social or a financial interest. Experience emphatically asserts that the things we remember are those things which interested us. Old men will tell you that they can recall the most important scenes and events of their youths more readily and completely than those of their later years. This is true because the part they took in their earlier events was accompanied by more interest and feeling. The *will* may introduce the mind to an object, but it cannot force a permanent attachment between them. No teacher ever succeeded in compelling a young person to concentrate his mind on an uninteresting subject. Voluntary at-

tention is controlled by interest. No teacher can tell another just how to secure the interested attention of a class or of one pupil.

Memory—Suggestion.—An image which has been well stamped on the mind may be reproduced by anything present in the mind which suggests the image. What then is suggestion as used in mental science? A suggestion is any impression which is consciously received through any of the senses. The sight of a place may remind one of a public building located there. The mention of a person's name may bring to mind his features. The predisposition of the mind to live over again vivid experiences needs only a slight reminder to reproduce them. But the predisposition is seldom sufficient to recall the past; there must be an exciting cause also, a suggestion. Probably more of the past could be recalled by suggestion if the original experiences had been thoroughly stamped on the mind. The reason why most of our past lives is seemingly forgotten is due to the fact that there is nothing in the present to suggest the revival of the experiences.

The sight of a face which resembles a friend's is sufficient cause to reproduce the image of the friend's face. The humming of a tune is often sufficient cause to start one to singing his favorite song or hymn. The scent of a bottle of perfume may recall

the scent of a similar perfume. The mention of a mountain to the writer always recalls the image of Mt. Renier. A remark often suggests something heard long ago. Often in conversation a chance word or thought will start a whole train of associated ideas. The surrender of Cornwallis is suggested by mentioning Yorktown; the surrender of Bonaparte by mentioning Waterloo. A little thinking will convince the teacher that memory depends largely on suggestion. "When an impression has been well fixed in the mind there remains a pre-disposition or tendency to reproduce it under the form of an image. The degree of facility with which we recall any object always depends in part on the strength of this pre-disposition. Nevertheless, this pre-disposition will not in ordinary cases suffice in itself to effect a restoration after a certain time has elapsed. There is needed further something present to the mind to *suggest* the image or remind us of the event or object." (The teacher will give two other original examples, showing that ideas suggest ideas. The class will give three original illustrations showing the power and value of suggestion.)

Depth of Impression.—The depth of an impression depends on the force of the stimulus, the attention given it, and the time used in stamping it on the brain. Force, time, and attention are important factors in

the acquisition and development of percepts. The inattentive or passively attentive pupil often forgets, because the impressions, if any, were not sufficiently forcible to make a lasting impression on the mind. It is evident that the more forcible the impression, the greater its depth. "The depth of an impression depends largely on the way in which the mind reacts on the impression." The reaction depends on interest, and interest depends on attention. It is impossible to acquire lasting impressions without both interest and attention. What one remembers is what interested him when the percept was acquired. This statement is psychology *applied*; it is not a "how," but a general principle. It is why percepts, acquired in childhood, are readily revived in old age. Extraordinary impressions act on the mind by reason of their unusual character or force. Ordinary experiences are fixed only by repetition, the number of repetitions required depending on the method of the teacher and the attention of the pupil.

Cultivation of Memory.—The cultivation of the memory has often been attempted by using various devices. Most of these devices are worthless. Retention is conditioned by the character of the sense impressions, for they are the raw material on which the mind does its work. It is evident that the deeper the impression made on the mind the longer the im-

pression will be retained. This fact is a practical schoolroom fact. If one is thorough in his methods of acquiring knowledge he is apt to have a tenacious memory. One's mental habits, one's method of learning things, usually determines the retentive power of his mind. Many persons sigh over a weak memory when they should grieve over a weak will. The mind cannot retain and reproduce what was never really perceived. Memory is improved, not by devices, but by associating ideas, by correct, habitual methods of recording facts.

Comپaryé says: "The law that associates ideas is the one important law to be observed in cultivating memory. It shows that our recollections are connected with one another; that their connection fixes them in the mind; and that, once associated by any bond whatever, the appearance of one suffices to evoke the other. In the culture of the memory the teacher will then take advantage of the association of ideas and of its different principles—some of them accidental and exterior, like contiguity in time and space; others intrinsical and logical, like the relation of cause and effect. The more relations that are established among the items of knowledge, the greater will be the association of ideas and the more active and tenacious the memory."

Understanding Essential.—The mind has a stronger

tendency to retain what it thoroughly understands than it has to retain what it does not understand. Verbal memory is most dependent on the understanding. The retention of a quotation depends largely on a full comprehension of its meaning. Understanding is the mother of interest; interest is the mother of feeling; both interest and feeling aid retention. Understanding relates concepts, establishes associations. To understand a thing is to know its relation to other things. No fact has value or interest except in its relation to other facts. The mind is not a junkshop where the teacher who believes that cramming is teaching can store away isolated facts without reference to their relation to the past experiences of the pupil.

Experience proves that a mental faculty can be improved only by using it. Verbal memory is cultivated by memorizing and reciting choice selections. The exact language of the authors should be repeated. Such exercises not only cultivate memory; they train the mind to habits of voluntary attention, develop will-power, and hold in memory beautiful thoughts. Care should be taken that the memory is not overtaxed or drawn on to the point of fatigue. Any faculty of the mind, like any function of the body, is weakened by overworking it. The pupil should begin the task of cultivating his verbal memory by memorizing

in the exact language of the authors short but complete paragraphs and poems. Why, you ask, in the exact language of the authors? A quotation should be a quotation — nothing more, nothing less. The force and beauty of Longfellow's "Psalm of Life," Lincoln's "Gettysburg Speech," Emerson's "Self-Reliance," would be weakened and marred by any change in the language or in the arrangement of the text.

Where sound methods of instruction are used memory needs little or no special training. If the method of the teacher is in accord with the well-established laws of mental development the memory will receive its due share of attention. Memory, like muscle, is developed and strengthened by using it. Pupils who cannot recollect should be required to learn and recite complete selections of several stanzas or paragraphs. Only the choicest literature should be selected. Selections containing great thoughts, vigorously expressed, are not only most readily memorized but are most easily retained. The "Psalm of Life," or the "Nineteenth Psalm," is better mental food for a pupil in the grammar grades than the rule for the reduction of complex fractions, or the rule for finding the square root of a number.

Experience shows that the mind soon drops minor facts and the unimportant detail of events. This natural tendency of the mind carries with it a sugges-

tion for teachers. Emphasize only the essential facts and principles. The common schools should teach only what the pupil should know, and leave exceptions and the detail of events to his riper years. The minor facts and detail cling to the important facts and often survive by sufferance. In the struggle for existence the weaker impressions, like the weaker men in business, go to the wall—that is, they pass out of consciousness forever. This is an agreeable truth, for many facts and experiences should be forgotten that we may more earnestly consider the stern realities of life. A discouraging companion is he whose mind is filled with the trifling occurrences of the day, and who can talk flippantly on all subjects. We should be thankful to Providence that our minds cannot recall the sidewalk scenes of the day and the unmeaning gossip of the hour.

I would not be misunderstood in regard to memory training. Cramming and memory training are widely different in their effects on the mind. Cramming weakens the mind by loading it with unrelated facts; training strengthens the mind by calling into use the laws of association. The value of a retentive, trustworthy memory is incalculable. It is the abuse of memory in our cram methods of instruction that has given memory a doubtful place in the new education. In requiring pupils to memorize selections, the teacher

should use his best judgment in selecting the choicest gems of literature, prose and verse. What the pupil is required to memorize should be strong intellectually and morally—matter that will train the memory and cultivate the heart.

Memory—Habit.—Every mental act leaves or should leave a trace behind it which constitutes a disposition to perform the same kind of action again. The strength of this disposition depends on the character of the original act. If the first act was characterized by attention, interest, and purpose, the disposition to live over that experience, if it was a pleasant and profitable one, will be almost irresistible. This natural tendency of the mind to recall, to live over again re-presentatively, pleasant and profitable past experiences strengthens the retentive power of the mind, enriches the present, and stimulates mental activity. But, if the first mental act of any kind is a passive, mechanical one there will be little or no disposition to repeat it.

The pupil must be fully awake during the recitation if he would profit by the exercise. The teacher also must be alert. Fitch says: “What every good teacher greatly needs is a quick eye and a comprehensive glance, which will take in the whole class at one view, or travel instantly from one part of it to the other. He should be able to detect the first rising of

disorder, and the first symptoms of weariness, in an instant, and to apply a remedy to it the next instant. It is from want of promptitude in noticing the little beginnings of inattention that our classes so often get disorderly and tired. I recommend every one who wants to be a good teacher, therefore, to cultivate in himself the habit of sharpness and watchfulness. He should so train himself that he shall become peculiarly sensitive about little signs of inattention. It ought to make him uncomfortable to see one child's eye averted, or one proof that the thoughts of the class are straying from the subject. The surest way to increase inattention is to seem unconscious of it, or to allow it to pass unnoticed."

The natural order of mental development carries with it, step by step, the surest means of acquiring knowledge and retaining it. The memory is cultivated by the association of clear concepts; clear concepts depend on clear percepts. Memory is kept trustworthy by reinvigorating the fading concepts, by frequent perceptions of the same object or relation. This mental fact says to every teacher two things: Be thorough and review. See that the pupil acquires a clear idea of the subject, then keep him from forgetting it by reviewing it.

James says: "The popular idea that the memory, in the sense of a general elementary faculty, can be

improved by training, is a great mistake. Your memory for facts of a certain class can be improved very much by training in that class of facts, because the incoming new fact will then find all sorts of analogues and associates already there, and these will keep it liable to recall. But other kinds of facts will reap none of that benefit. . . . Learning poetry by heart will make it easier to learn and remember other poetry, but nothing else; and so of dates, and so of history and geography. Constant exercise in verbal memorizing must still be an indispensable feature in all sound education. Nothing is more deplorable than an inarticulate and helpless sort of mind that is reminded by everything of some quotation, case, or anecdote, which it cannot now exactly recollect. Nothing, on the other hand, is more convenient to its possessor or more delightful to his comrades than a mind able in telling a story to give the exact words of the dialogue or to furnish a quotation accurate and complete."

Every-day experiences fully illustrate the value of attention in acquiring lasting percepts. Passing down the street, I meet an acquaintance walking with a gentleman I do not know. I stop a moment to greet my acquaintance, who introduces me to his friend. I merely glance at the stranger's face and pass on. The next day I meet the new acquaintance,

but I do not recognize him. Why not? Because I did not see him yesterday. I did not attend. I did not acquire a distinct percept. The attention, if the glance I gave him can be called attention, was so characterless that it did not leave even the shadow of an impression. So it is with an inattentive pupil in school. In a word, the training value of a mental act depends in a very large measure on the kind of attention given the act.

Teacher — The Essential.— When the principal thing about a teacher is purpose he is greater than all methods. When his very soul is impacted into his teaching he is indeed a moral as well as an intellectual leader. In the work of the schools the essential is not text-books, nor text-book facts, but earnest, capable men and women teachers. The real influence in education is not the fact taught, but the inspiration which accompanies its teaching. The true teacher seeks, not to make the pupils recite, but to make them think. Thinking is the beginning of wisdom. One may theorize, and speculate, and not become better or wiser. A teacher needs the power to will and the courage to do. If he would inspire and direct he must act. If he would free others he must first free himself. If he would have self-reliant pupils he must be self-reliant. Self-trust inspires, and liberates, and is contagious.

TEST QUESTIONS ON THE CHAPTER.

1. Define memory and illustrate what is meant by the revival of a past experience.
2. What is meant by retention? By reproduction?
3. On what special laws does memory depend?
4. What effect has time on impressions? Illustrate.
5. How may an impression be kept from fading out?
6. Why has a feeble impression little or no value?
7. What kind of experience is most surely retained and most readily revived? Give two illustrations.
8. Give three original illustrations to show that memory depends on suggestion.
9. In what respect is the human brain and the cylinder of a phonograph supposed to be similar?
10. Why is it necessary for Miss Smith to review her classes oftener than Miss Jones?
11. Why should teachers emphasize important principles and events?
12. On what does the character of presentative knowledge chiefly depend? Illustrate.
13. On what does the character of representative knowledge depend? Illustrate.
14. What determines the character of mental operations?
15. What dependence do you see between perception and presentative knowledge? Illustrate.
16. What relation do you see between perception and retention? Illustrate.
17. What determines the character of the revived percept?
18. Why should a quotation be given in the exact language of the author?

CHAPTER V

IMAGINATION

In the preceding chapter we learned that memory is a revival of past experiences; that it is a picture-forming process; that revived percepts are called images; that the images are more or less accurate pictures of objects and experiences which were once in consciousness. Imagination is also a picture-making process. The difference between the pictures reproduced by memory and those constructed by imagination should be clearly seen by the student if he would know wherein imagination differs from memory. The difference may be briefly stated. Memory revives percepts; imagination reconstructs the images. In memory past experiences are seen by the mind in the same order in which they were perceived; in imagination the mind without regard to the order of perception fixes the order and constructs the ideal picture.

In the study of perception we learned that it is a combining process, that it combines into wholes the sensations which reach the mind through the sensory nerves. Next we learned that memory is of things, of individual things, once in consciousness. We are

now to learn about constructive imagination. We are to learn that it is limited to the material, supplied by the senses, held in memory, and reproduced in the form of images. Imagination creates ideal pictures; but it does not create the material used in constructing the pictures. It uses the material, however, to please itself. In this special sense it is creative, and only in this special sense.

From what has been stated it is seen that the excellence of ideal pictures depends on the character of the real pictures, on the character of the images which form the basis of the ideal pictures. (The teacher will explain why imagination is indebted to memory for its material. The pupils will explain why percepts and images are of individual things; also why images are less distinct than percepts. The teacher will explain and illustrate why distinct percepts are more valuable than indistinct ones.)

An example will best illustrate how imagination constructs its ideals, and in what it differs from memory. My pupils went to the country to see a hill in the hope that seeing one would enable them to imagine the appearance of a mountain. They saw a hill. They made a note of its shape, of its soil, of its vegetation, of the time required to climb from its base to its summit. The next day I required the pupils to give in writing a description of the hill. Step

by step memory reproduced the percepts. The memory picture of the hill was distinct and accurate, for the percepts were distinct and accurate. The pupils learned years ago that a mountain is a high hill, so high that it takes hours to climb to its top; so high that its top is covered with snow all the year; so high that clouds seem to rest on its summit; so high that its summit is bare of vegetation. The pupils should now have a fairly correct picture of a mountain. With the image of a hill and the description of a mountain, imagination can easily construct a mountain. (The class will construct an ideal picture.)

Visit Central Park, New York City. Carefully notice what you see there. Note the arrangement of the objects, a carriage road, a foot-path ascending a steep hill, a fountain, a rose-bush, a negro girl looking into the running stream, a large black dog lying at the foot of the marble statue of Bonaparte. Now think about what you saw there. Reproduce the percepts. You can rearrange the images, and construct an ideal picture of a park. In constructing the ideal picture you will start out with a hazy notion of the picture you want to make. You will therefore search among your other images for the kind of images you need to form an ideal picture. You are privileged to accept or to reject the images you select from other experiences because the picture you are constructing

is wholly ideal; it is not like any other picture you ever saw. In doing this you are exercising the constructive imagination. The elements of your ideal picture, however, are images.

Note that the image of the hill is a copy of the revived percepts of the hill and that the imaginary mountain is based on these images. These images have been modified, transformed, and recombined. A little thinking makes it clear that the pupils could not have constructed the imaginary mountain if they had not first seen a hill, and knew the relations that exist between hills and mountains. You will also note that the ideal picture of the park scene is in the main a modified view of what was perceived, a rearrangement of the objects seen in the park with such added features as were needed to construct an ideal picture. We may now define imagination: 1. "Imagination is the process of making images." 2. "Imagination is the mind's power of making images without the present help of the senses." 3. "Imagination is the power of representing a mental product as an image." It is generally believed that imagination is the most difficult faculty to define and describe.

Nature of Imagination.—The definitions of imagination show that it resembles both perception and memory in one important particular, viz.: its product

is always particular; it is an idea of this or that object, person, or event. It is one of distinct existence. Perception and memory refer to objects and events; imagination is an *idea* of objects and events. Sully says: "Under the stimulus of emotion, such as the love of the marvelous or the beautiful, imagination is wont to rise above the ordinary level of experience, and to picture objects, circumstances, and events surpassing those of every-day life. The ideal creations of the imagination are thus apt to transcend the region of sober fact. The child's fairyland and the world of romance, which the poet and the novelist create for us, are fairer, more wonderful, and exciting than the domain of real experience."

Process of Imagination.—Imagination involves two distinctly separate processes, the isolating process, the process which omits certain elements of the revived percept and retains other elements, and the combining process, the process which combines parts or wholes of other revived percepts with the part of the first percept selected as the basis of the ideal. That is, before imagination can construct an ideal it must first disassociate the elements of the real, the elements combined by perception. Memory is limited by perception, by what is actually presented to consciousness in time and space. The ideal, though constructed out of the material supplied by percep-

tion, is not a copy, but wholly an ideal, formed by using the disassociated elements of one or of several distinctly different percepts.

A few illustrations of the different kinds of imaginative products will make the meaning of the foregoing paragraph clear. Imagination is constructive; it is creative only in the sense that it creates new objects out of old material. Imagination can construct an almost literal image of an object. It can construct the image of a house with a view to drawing it exactly. It can construct an image out of the parts of two or more concrete objects. It can form single combinations of separated elements. "The Grecian joined the head and trunk of a man to the body of a horse, and thereby gave us the Centaur. To the body of a dog imagination added three heads, and put snakes in place of hair, thus fashioning Cerberus, the guardian dog of Hades."

Imagination can diminish or enlarge existing objects. Dean Swift illustrates this fact. In writing about his voyage to Lilliput in *Gulliver's Travels*, he says: "The Lilliputians needed ladders to climb upon the body of Gulliver when he was lying down, although he was a man of ordinary size." The giant Atlas carried the world upon his shoulder. The Norse imagination made the Midgard serpent so large that it encircled the earth.

Kinds of Objects.—There are two kinds of objects, the real and the ideal. The real object is one that is brought into consciousness through the senses; it truly exists in time and space. The ideal object is one constructed by the mind from elements selected from past perceptions. In one sense both kinds of objects are real, differing in their origin. The ideal object is as real to the self that constructs it as the real object to the self in perception. It is important to bear in mind the fact that imagination is conditional on memory, that memory is one of its limitations. The images of imagination are combinations of partial experiences given by memory, only the combination being new.

Neither memory nor imagination creates. This fact the pupil should understand. Memory reproduces, as wholes, the percepts formed by combining sensations. That is, the reproduced percepts are copies of the original percepts. Imagination takes the whole or any element of a percept and reconstructs it. It does not create the element. In no way is it possible to create new material without the aid of the senses. The teacher who fully understands this fundamental fact should never lose sight of it in instruction. He should lead his pupils to recognize it. It is clearly the teacher's duty to impress on his pupils the importance of acquiring

knowledge in the right way. This he can do in all grades above the sixth without delivering lectures on psychology or by using terms that need translation. Most of all, however, he should be thoroughly convinced that his own method of presenting the subject is a sound one.

As memory is the picturing of objects and events in what are called images, it is a form of imagination. Memory is sometimes called reproductive imagination. Imagination as treated in this chapter is more than reproductive; it is constructive. In constructive imagination memory-images are modified and recombedined. The images of memory are primary or radical images, the images of objects; the images of imagination are secondary or derivative images, the images of ideas, of ideal objects.

The imagination plays an important part in all forms of mental activity. Every complete percept is in part the work of the imagination. This statement is clearly true of all percepts formed through the sense of sight when all parts of the object cannot be seen at once. One illustration will suffice. I see only one side of the apple on my desk; the other side of the apple must be seen through the eye of the imagination to complete the perception. The images of memory are complex products in which perception is aided by imagination. "Imagination is a relating

activity of the mind, and things are truly known only in their relations. Atoms and molecules are not visible; the correlation of forces cannot be seen; the solar system as a whole is not presented to the senses; geological periods can be pictured only in succession. History is not a collection of names and dates, but a panorama of persons and events." Imagination sees and relates these invisible forces and facts.

Kinds of Imagination.—There are two principal kinds of imagination: Constructive imagination and æsthetic imagination. The most important of these is constructive imagination.

Constructive Imagination.—This form of imagination is always active in the acquisition of knowledge. It is characterized by a definite purpose and a persistent effort to accomplish that purpose. Constructive imagination selects its material; hence the value of the imaginative picture depends on the number and quality of the images at its disposal. This form of imagination, having a definite picture in view, rejects the images that do not suit the ideal. The excellence of the constructed ideal depends on the strength of the reproductive faculty. Memory must restore the impressions of past experiences or we cannot picture a new scene or event. Here again is seen the universal fact that the value of a mental act depends on the character of the act. How could a

child imagine an iceberg if he could not reproduce the image of the piece of ice he had seen? Imagination leans on memory; memory, on perception; perception, on attention. (The teacher will illustrate these important facts.)

The constructive imagination is involved in correct methods of instruction. It enlarges and completes every perception; it stimulates thinking; it enriches the recitation by carrying the pupil into the realm of the ideal. The products of the constructive imagination measure the material progress of the world. Primeval man imagined that the skin and fur of some animals would protect him from the cold of winter. The will made the image a reality. Step by step the constructive imagination has given us the chimney, the stove, the locomotive engine, the sewing machine, the bicycle, and the automobile. As imagination is limited to memory for material, it follows that its product is limited to the dominant perceptions, to clear-cut images. In this fact the thinking teacher will see the value of interest, attention, concentration, enthusiasm, and purpose on the part of the pupil during the recitation.

The constructive imagination is not only the inventor of labor-saving machinery, and of ornamental products, it is also the promoter and guardian of public and private morals. The real is so imperfect

that I fear there would be comparatively few marriages, if the mind did not have the power to reconstruct the memory image, to leave out the objectional features and magnify the desirable ones. This would be a plain, humdrum world indeed if the imagination did not have the power to take individual elements, revived by memory, and combine them into new forms. Goethe says: "There is a moment in his life when a young man can see no blemish in the lady he loves, and no fault in the author he admires. A man in love may think that his Angelina sings divinely sweet, though her voice is like a crow's. He interprets the impressions which he receives according to previously formed impressions."

Prof. James begins his chapter on imagination as follows: "Imagination, what it is. Sensations, once experienced, modify the nervous organism, so that copies of them again arise in the mind after the original outward stimulus is gone. No mental copy, however, can arise in the mind which has never been directly excited from without. The blind may dream of sights, the [deaf of sounds, for years after they have lost their vision or hearing; but the man *born* blind can never have a mental vision, nor the man *born* deaf can never be made to imagine what sound is like. The originals of them all must have been given from without." The foregoing extract shows

that this distinguished philosopher sees clearly the relation, and the dependence of the highest intellectual process upon sensation, and perception, the only sources which supply the raw materials of knowledge.

Nothing can be permanently impressed on the mind without using the constructive imagination. Dry, disconnected memory facts are meaningless; they cannot be used in the construction of images. The cram method of teaching geography fully illustrates and verifies these statements. As this subject is taught in many schools the pupil stores away for use on examination day the names of places, of rivers, and of mountains given on the maps, and the teacher is content in the belief that the pupil is studying geography. The victim of the method remains ignorant of his condition, until he is called on to describe a place or country, and to give reasons for the condition of the people and their resources. The mere ability to name the largest country, the most populous city, the highest mountain, and the largest river does not train perception, memory, or imagination. Catechism geography has little value, intellectual or moral. It does not reach the head or the heart.

Æsthetic Imagination.—This form of imagination is accompanied by feeling or emotion and aims at immediate enjoyment. Feeling enters into all acts of the imagination; it distinguishes this form of imagi-

nation from constructive imagination. Feeling gives a peculiar vividness to the imaginative product. Every one in some sense appreciates the true, the beautiful, and the good. Parents and teachers should see that children do not come into contact with the low and the vicious through improper associations or by reading vulgar literature. Most parents and teachers undervalue the idealizing power of children in the lower grades. As association plays an important part in determining the ideals of the young, children should not be permitted to associate with persons, old or young, who use profane or obscene language or whose physical habits are questionable. The young should not be permitted to feed on the cheap events described in the five cent novels, and the improbable and miraculous events of history.

Next in influence to association is the printed page. Halleck says: "The reading of too much fiction is dangerous. The impossible stories that have been sown broadcast over the land have wrecked many a young life. From their teaching young persons have imagined that they could dream themselves into success. It has been well said that even novels of the better class are sweets, and should form no greater proportion of our reading than do sweets of our diet." The young should never allow themselves to build any imaginative castle, unless they are willing by hard

effort to try to make that castle a reality. They must be willing to take off their coats, go into the quarries of life, chisel out the blocks of stone, and build them with much toil into the castle walls. If castle building is the formation of an ideal, which by effort you are determined to attain, then all will be well. Put foundations under your ideal castles.

Imagination—Memory.—While an object of perception seems to be a mere thing, wholly real, a little thinking shows that the imagination aided the senses in developing it. In memory the images supplied from previous experiences are set free and given an independent existence. The memory of the steamship St. Louis is very different from the perception of the ship. The perception of the ship is the perception of a thing really there; the memory of the ship is an *idea* in the mind. Introspection shows that imagination is active in the construction of the image *ship* and in holding the idea *ship* in the mind. Memory is limited by perception to space and time; imagination is not directly limited to space and time; hence it is a broader power than memory. Memory works on the images formed by the laws of association; imagination begins its work by disassociating the elements associated or combined in perception. (The class will illustrate.)

Memory is revival of a past experience. Imagina-

tion is the representation of an ideal object. The objects of memory are facts of experience; the objects of imagination may or may not be facts of experience. Memory is reproductive; imagination is constructive. Memory is mediate knowledge of the past; imagination is mediate knowledge of the past, present, or future. The sphere of memory is finite; the sphere of imagination is infinite. In imagination the mind transgresses the bounds of the real, and forms for itself objects in the boundless unreal. However, there are limits to the excursive power of the imagination. Although it disregards experience it cannot transgress the bounds of experience. Imagination can transform the raw material of knowledge into wonderful forms, but the material must be supplied by perception. The imagination may fashion a disorderly pile of brick into a beautiful house, or a shapeless mass of steel into watch springs, but the brick and steel must first be present to the senses. The common impression that imagination can create something out of nothing is erroneous.

In memory past experiences are represented with great fidelity; in imagination the mind represents an ideal as an image. Imagination takes the memory image and creates a new image differing much or little from the memory image. Imagination creates an image by using an *idea* as the material to work

on; memory creates an image by using the *percept* as the material to work on. In constructing historical and fictitious events imagination is a substitute for perception. Shakespeare says:

“ And as imagination bodies forth
The form of things unknown, the poet’s pen
Turns them to shape, and gives to airy nothing
A local habitation and a name.”

It is clear that the value of images constructed by imagination depends on the character of the memory images, and that the character of the memory images depends on perception. The structure can never be better than the material used in constructing it. Vague and feeble memory images cannot yield distinct and strong ideal images. A vigorous and healthy imagination is the product of distinct perceptions and a trained memory. These fundamental facts are worthy of due consideration by the young teacher. They are clearly within his comprehension, and should be applied in every recitation. The laws governing mental development are not mere speculations; they are demonstrable facts which every teacher should know. The teacher must study mind in order to deal with it intelligently. Mental activity, as experiments prove, is subject to and governed by laws, a knowledge of which constitutes the essential part of a teacher’s qualifications.

Imagination — Acquisition.—The expansion of knowledge beyond perception involves imaginative activity. Learning is not simply reproduction; it is reproduction modified by the constructive power of imagination. Imagination must give content to memory images. The meaning of words is realized only when the imagination frames clear and distinct pictures of the objects described. The word *boy* has no meaning to one whose mind does not frame the image *boy*. The word *desert* has no meaning to the pupil whose imagination does not image a plain, covered with sand. In following the description of an object or event the child understands only to the extent that his imagination fills the words with meaning. It is sheer nonsense for a teacher to attempt to give instruction in a language which his pupils do not understand. It is the teacher's duty to know that his pupils understand the meaning of every term used in the statement of principles and definitions.

The beauty, the power, and the intellectual value of imagination are best seen in the writings of the cultured. Note the following description of the heavens by Edward Everett: "I had occasion, a few weeks since, to take the early morning train from Providence to Boston, and for this purpose rose at two o'clock in the morning. Everything around was wrapped in darkness and hushed in silence, broken only by what

seemed at that hour the unearthly clank and rush of the train. It was a mild, serene, midsummer's night,—the winds were whist. The moon, then in her last quarter, had just risen, and the stars shone with a spectral luster but little affected by her presence. Jupiter, two hours high, was the herald of the day; the Pleiades, just above the horizon, shed their sweet influence in the east. . . . Such was the glorious spectacle as I entered the train. As we proceeded the timid approach of twilight became more perceptible; the intense blue of the sky began to soften; the smaller stars, like little children, were first to rest; the sister beams of the Pleiades soon melted together; but the bright constellations of the west and north remained unchanged. Steadily the wondrous transfiguration went on. Hands of angels, hidden from mortal eyes, shifted the scenery of the heavens; the glories of night dissolved into the glories of the dawn. The blue sky now turned more softly gray; the great watch stars shut up their holy eyes; the east began to kindle.”

Imagination—Body.—We shall touch but briefly on the influence of the imagination on the physical system. It is a well-known fact that the health may be materially affected by the imagination. One may imagine himself sick and be sick, while he is enjoying(1) perfect health, or he may imagine himself well while

he is in a critical condition. "Faith cures" are due to the work of the imagination on the physical system. A few "stock illustrations" will show conclusively that the imagination can affect the physical man. "The head of a family purchased some fresh meat with the intention of testing the power of the imagination on the senses. The meat was cooked and a member remarked that it would just suit a Frenchman, as it was so gamy and tender that it would not hang on the butcher's hook. Several at once perceived or imagined an unmistakably putrid taste, and one of the family, being unable to endure the odor, left the table."

"There is a well-authenticated case of a butcher, who, while trying to hang up a piece of meat, slipped and was himself caught on the hook. When he was taken to a surgeon, the butcher said he was suffering so much that he could not endure the removal of his coat; the sleeve must be cut off. When this was done it was found that the hook had passed through his clothing close to the skin, but had not even scratched the skin." Again, "A man sentenced to be bled to death was blindfolded. A harmless incision was then made in his arm and tepid water fixed so as to run down it and drop with considerable noise into a basin. The attendants frequently commented on the flow of blood and the weakening pulse. The

criminal's false idea of what was taking place was as powerful in its effect as the reality would have been, and he soon died." (The teacher will give an original example illustrating the power of imagination on the body. The class will also give two examples illustrating the power of mind over body.)

Cultivation of Imagination.—As imagination cannot construct something out of nothing it gets its material from perception. Imagination can no more create a mental image without material than a builder can construct a house without material. There is nothing miraculous in the images created by imagination. It is a wonderful faculty, but not a miraculous creator. The formation of clear-cut images is the first essential in cultivating imagination. As the character of the memory image depends on perception, so the character of the imaginary image depends on the character of the memory image. As only clear-cut and well-developed percepts can be reproduced as memory images, so only clear-cut memory images can be used by imagination in constructing ideals. From the foregoing fundamental facts it is clear that the surest, shortest, and safest method of cultivating imagination is through perception.

Accurate percepts are the only kind of percepts that yield clear-cut images; hence they are essential to the right cultivation of both memory and imagina-

tion. The teacher who would train his pupils for intellectual power should never forget the dependence of the higher intellectual processes on the elements of knowledge, sensation and perception. In his beautiful description of the heavens Everett joined his previously acquired knowledge of the starry world to his present perceptions of the same world, and his imagination gave us a prose poem. Knowledge is power only when it can be applied in new ways under new conditions. (Class will select another prose poem.)

Pictures.—Pupils should be required to interpret the stories found in their school readers by means of pictorial illustrations. This form of "busy work" would cultivate their imaginations and give the dry facts a permanent setting. It would train the eye, the hand, and the will. Children are full of imaginative activity. They like to picture strange things, and endow their playthings with human attributes.

Oral Description.—In the grades below the high school the pupils should be required to give clear, concise, oral descriptions of familiar objects. The exercise would show that most of the images are hazy. The hazy character of the images is usually due to imperfect perceptions. The exercise would throw the pupil on his own resources; he would thus realize the value of careful observation. The exercise would impress the pupil with the fact that his ability

to arouse interest and revive definite images in the minds of others depends very largely on his power of accurate expression.

Composition.—Knowledge acquired from studying school text-books should be used in the construction of original compositions. Until it is used it is dead learning; until it is used as the material for composition it is little more than memory storage. Expression is the test of the pupil's knowledge as well as the key to his habits. Method should compel the pupil to express himself, to realize his best effort in all he does in the schoolroom. The more uniform and exacting the methods of a teacher the shorter the time required to dislodge bad practices on the part of the pupils. Composition is the one school test that requires the pupil to exhibit himself, to show just what he really is. Composition writing is a test of the trustworthiness of the memory and the power of the imagination. By embellishing memory facts the pupil cultivates his imagination.

The pupil should recite his class task; that is, he should give an account of what he has learned of the lesson assigned him. The pupil, not the teacher, should recite. The worst conceivable teacher, from a training point of view, is the one who does all or nearly all the reciting. The act of preparing a lesson for a properly conducted recitation trains both mem-

ory and imagination. It trains both the reproductive and constructive powers, because memory reproduces and imagination gives content. As soon as the pupil learns that he must give an account of himself in *every* recitation, as soon as he learns that the teacher will not use *his* time, he will begin to interest himself in his studies, and memory and imagination will kindly volunteer their assistance.

History—Geography.—These subjects appeal to the imagination with much force. When a chapter of history or a section of geography has been completed in formal class recitation each pupil should be required to prepare a written outline of it. In history the pupil should state only important facts, give only a few dates, but strive to build strong and true pictures of the men who made the history. Without imagination history cannot be well written or fully comprehended. In geography the pupil should draw a memory map of the country, locate and describe the principal cities, rivers, lakes, and mountain ranges; in short, he should make a pen-picture of the country as a whole.

The distinctness of the ideal picture depends on the distinctness of the revived percepts. No one can imagine well who does not see, hear, touch, taste, and smell well. We cannot build a substantial structure upon a sand foundation. We cannot get away from

perception and clear images. The teacher should bear in mind the facts that clear images are built up gradually, and that it is his duty to know whether the pupil has built them correctly. This he can ascertain in only one way, by searching questions. In teaching history and geography the great truth so beautifully expressed by the wisest American should be kept in mind in assigning lessons: "Details are always melancholy and should be left to the imagination of the reader."

Abuse of Imagination.—Imagination is often abused. From its very nature it is more liable to be abused than any other faculty. In imagination we have a mighty power, a power that should be carefully cultivated in the right direction. While imagination is essential in every mental operation it must be kept under control or it will run away with us. The man of high ideals is not always a man of action. One may become a mere castle builder, a day dreamer. One may spend his time in enjoying his ideals and neglect to put foundations under them. An untrained imagining mind may fail to make the necessary examination into facts and principles, and thus invite failure. An untrained imagining mind may ignore the facts established by inductive reasoning, and thus invite failure. The mere castle builder abandons effort and hopes for reality. He ignores the stub-

born facts of life and jumps into eminence with one bound. The young cannot be too deeply impressed with the fact that condition is a growth, and that success is a reward won by high ideals, purpose, and effort. "If you wish success in life, make perseverance your bosom friend, experience your wise counsellor, caution your elder brother, and hope your guardian genius."

Imagination — Ideals.—Ideals depend largely on one's early associations and environments. The youth whose imagination has not been fired by the conduct of the courageous and honorable of his associates and the beautiful in nature will not amount to much. The young man is dead whose imagination is not fired by studying the life of Washington or Lincoln. An ideal man may embody the distinguishing characteristics of several great men. He may embody the energy and self-confidence of Napoleon; the integrity and patriotism of Washington; the iron will of Grant. *Æsthetic* imagination concerns itself with the ideal. The ideals formed in youth by the *æsthetic* imagination determine character. Life is won or lost by its controlling ideal. Thus imagination is a character builder. The *æsthetic* imagination may create high ideals or low ones, which, depends on the materials supplied by experience.

The first step to take in forming an ideal self is a

belief in self. No one can realize the ideal who does not believe in God, in himself, in humanity, in law, in justice. Want of faith in one's self is the cause of most failures.

“In Syria, India or Egypt sought,
One answer only have the years
Sent down to banish doubts and fears:
Within Thyself must Heaven be caught
And captive held—or all is tears!
For this saints died and martyrs fought.”

“Thyself within! Thyself within!
O friend! find here thy strength, thy peace.
Pray not that loss and change may cease—
Pray, rather, higher heights to win!
Thy spirits Godward wings release,
And soar thee where thou art akin!”

An ideal that does not inspire persistent effort has little value. There is but little hope for the success of one who is not “immovably centered.” A constant endeavor to realize the ideal is one's duty. Struggle is the law of life. Persistency of effort distinguishing the successful from the unsuccessful man. Great deeds are not gifts, but the results of high ideals, purpose, and ceaseless effort. Every one is privileged to form an ideal and strive to attain it. No one ever became an individual of note who was content to admire and praise the ideal in others. Moral character is not the product of ideals and dreams, but of ideals, purpose, and effort. Each one

must be up and doing. Each one has a part to play in this busy world. Each of us must throw his whole heart and soul into his work or fail. "Enthusiasm is the genius of sincerity, and truth accomplishes no victories without it." The ideals formed by the aesthetic imagination are ever striving to work themselves out in action, and in this way character is shaped. Great therefore is the responsibility of the teacher. Woe to the teacher who does not furnish his pupils high ideals. The teacher that has realized his ideals is dead.

"Make your pupils think." Individual thinking and doing are the only means whereby man discovers and realizes his relation to God and man. Thinking has been the death knell to much that has for centuries been considered mysterious and supernatural; it will continue to free man from the dictation of the dead. Education, intellectual and moral power, is man's only hope for intellectual and moral liberty. Education tends to individualize humanity. As yet thinking is a *habit* only with a small minority; the masses are still content with passive beliefs.

TEST QUESTIONS ON THE CHAPTER.

1. What is meant by reproductive imagination?
2. What is meant by constructive imagination?
3. How many kinds of constructive imagination are there?
4. In what sense is imagination a creative process?
5. What is the distinguishing difference between memory and constructive imagination?
6. Show that imagination plays a part in perception.
7. On what does the character of the imaginative image usually depend?
8. In what way does imagination depend on memory?
9. Show that imagination depends on perception.
10. What is the usual cause of indistinct mental images?
11. In what sense is the imagination limited by experience?
12. What is meant by æsthetic imagination?
13. Give two original illustrations to prove that imagination may affect the body.
14. State three points of difference between memory and the constructive imagination.
- * 15. Why do geography and history appeal more directly to the imagination than arithmetic and grammar?
16. Why is he who has realized his ideal dead?
- ✗ 17. Why is he who is no longer a student unfit to lead others?
18. What is the relation between the ideal and the real?
19. Why is the ideal never realized, and what would be the effect on the individual if it could be realized?
20. Why are ideals character builders?
21. In what sense does one reap what he sows?
22. What is meant by the sentence "Life is a struggle"?

CHAPTER VI



ASSOCIATION — APPERCEPTION

Association of ideas is closely allied to the conditions and laws of memory. Experience proves that the reproduction of a concept is always accompanied by the reproduction of another concept or of a train of concepts. Mental activity and mental development are governed by laws not made by psychologists but by the Creator, and discovered by students of mental science. Man only discovers and uses; he does not create. The general law governing the association of ideas is a very simple one. "The activity of mind never leaves sensuous elements isolated, but connects them into larger wholes."

An example or two will illustrate this general law. If you will think about the last teachers' institute you attended, you will find yourself thinking about the conductor of the institute, about the instructors, about the distinguished visitors, about the evening lectures, and probably about some person whose acquaintance you made there. Again, if you will think about your last railroad excursion, you will find yourself thinking about the preparation for the excursion,

about meeting your friends at the railroad station, about many incidents of the trip, about the return trip, and the greeting on your arrival at home.

Yesterday an acquaintance showed me the photograph of a friend of mine who was killed by Indians years ago. The sight of my old friend's picture started a train of ideas and events, covering a long period of time, but which had not been in consciousness for years. I was forced to review the acquaintance with my dead friend, so great was the influence of suggestion, due to the sight of his picture. Among the events which the sight of the photograph suggested were the following: The name of the place where we first met; the length of time we lived in adjoining houses; the character of his professional business; his removal to St. Louis; thence to New Mexico; his tragic death; his burial at Fort Scott, Kansas. (The teacher will add another example, and the class another.)

Association of ideas may be defined as follows: 1. "Association of ideas in psychology is that process in reproduction by which past cognitions are brought back through connection with something present in the mind." 2. "Association of ideas is the power of the mind that binds together all the elements of an experience in such a manner that the recall of any one element will tend to recall the entire experience."

3. "Association of ideas is the means by which a successive train of ideas arises." Why is it that ideas enter into successive trains, each suggesting the next? The answer to this question is a simple one, and suggests much to the teacher. Experience proves that ideas which have once been in consciousness together have the power of calling up one another. If any part of an experience is revived, there is a tendency for it to complete the experience by suggesting the parts not actually presented. An example will illustrate this law. In 1858 the writer heard Mr. Lincoln make a speech. By his act of attention at the time, the speech and the speaker become indissolubly united into one idea. Years afterward the writer read the oration and there recurred to his mind the idea of the speaker as he delivered it. The reason is evident; the speech was not an independent idea, and it completed itself by suggesting its other part. (The teacher will call on the class for additional illustrations of this essential law governing the association of ideas.)

It is clear from the foregoing illustrations that thinking about anything tends to make one think of something connected with it. This mental fact is called the association of ideas. "Of a whole group of contemporaneous events any one may call up the image of the other."

“ Lulled in the secret chambers of the brain,
Our thoughts are linked by many a hidden chain;
Awake but one, and lo! what myriads rise,
Each stamps his image as the other flies.”

Every reproduction of an experience shows that one idea depends on or hangs to another. “ Each idea as it comes before us reaches one hand back into the past and the other forward into the future.” One cannot have an isolated idea. If he could have one it would soon pass out of consciousness, because there would be nothing in the mind to hold it there. The laws of association clearly show that ideas do not exist alone nor on their own account. Our sense-impressions are experienced in a succession of time and referred to an order of coexistence in space; they are not recalled as separate and single impressions but associated in groups. We have already seen that the organization of percepts in certain definite relations is essential to perception. Accordingly our ideas are connected, and constitute a train of ideas that recur to consciousness in a certain order and relation. Ideas suggest one another in a manner with which we are familiar. The idea of a hearse brings up ideas about death. The idea of a house suggests the appearance of those who live there. The first words of a song suggest the following words.

Association — Perception.—Perceptions are de-

pendent on the presentation of external objects; hence the order in which they follow each other is determined from without, not by the mind alone. Mental re-presentations are not directly dependent on external objects; hence the order of sequence is determined by some principle of mind itself. We are conscious of a constantly changing train of mediate cognitions; one follows another unceasingly. Evidently they do not arise at haphazard, but are connected by bonds which determine the train. Suggested sequence occurs when a present mental state induces the repetition of a past similar state with its associations. This is association by similarity. This bond between the present and the past is determined by experience and the habits of the individual. A little thinking shows that ideas are held in the mind by different kinds of connections. This means that the several elements of an experience are combined or grouped in certain ways. This grouping is according to the laws of association.

The mind connects all sensations as far as possible into one total maximum experience. A simple illustration will show that the general law of presentation is true. If the eye sees a rod striking a surface at certain intervals, and at the same periods the ear hears a noise, the two will go together into one idea, whether or not they have a common source. So two

events occurring at about the same time, say a rain storm and a certain phase of the moon, will tend to be united. The tendency to shun isolated elements and to force connections wherever possible is perhaps the fundamental law of mental action. Every intelligent experience proves that isolated ideas cannot be retained. Experience is the dictionary of life; it defines, assimilates, and relates.

Enough has been said to show that ideas are governed by law, and that thought is not a haphazard product. "Sometimes we fancy that ideas floating through our minds are under the control of no law; but the truth is that our ideas appear under the direction of a law as inflexible as that which controls the ocean currents or the rising or falling of the tides. All ideas have certain definite associations with other ideas and they come up in groups. There is always an association between our ideas, although there are cases when we cannot trace it. An impression may be associated with another in several ways. Psychologists treat association under three heads: Association by *Similarity* or *Resemblance*; association by *Contiguity*; association by *Contrast*."

Association by Similarity.—All mental life falls under the principle of suggestion. Suggestion covers all forms of association. Ideas not only suggest each other, but actual sights, sounds, and tastes sug-

gest ideas. Any word or gesture suggests certain things or mental states of which it is the sign; and the thing or the feeling suggests its name when one has learned its name. The mention of the word boy suggests a real, tangible boy; the raised hand in school suggests a want; a groan suggests a pain; a cough suggests a cold; a laugh suggests a pleasurable state of mind; tears suggest a disconsolate state of mind. Experience proves that means suggest ends, causes effects, signs the things they signify, and the reverse. The sight of a scuttle of coal standing by a stove suggests building a fire. The smell of smoke suggests fire as its cause. The sight of a man reeling down the street suggests alcohol as the cause of his reeling. Of the principles which control the association of ideas, association by similarity is the most important. "This principle asserts that an impression (or image) will tend to call up the image of objects previously perceived which [resembles it]."

The law of similarity is the law of suggestion by resemblance. When we are learning anything we notice similar points and bind them together in unity in consciousness. In remembering past experiences we constantly pass from one past experience to others that are similar in character. On account of the resemblance a new face suggests an old and familiar one. This man with a Roman nose suggests another

man with the same kind of a nose. The mental picture of the cathedral of this city suggests another cathedral which had been seen or read about. The sight of a mountain makes you think of another mountain far distant, not because the two objects were ever in consciousness at the same time or in immediate succession, but because of the resemblance of the one present in consciousness to the mountain seen long ago. This man or that woman suggests another man or another woman on account of a resemblance in features, physique, voice or action. The greater the resemblance between two things, the greater the associative force and the probability that the presence or image of one would suggest the other.

Suggestion by similarity includes whatever ideas or objects are like one another in any respect, whether in appearance, in manner of use, in sound or in any other way. No limit can be put to the use of this principle. The apple blossom may call up the rose; the locust flower the pea. The idea of a straight line may suggest rectitude; a hammer may suggest a hatchet. That is, "Wherever there is perceived to be the slightest similarity between two ideas, then one idea has the power of summoning the other into consciousness." Almost every day the close observer is made to think of an absent and distant friend on seeing a stranger who looks like him. Almost every

day one or more past experiences are brought back again because of their similarity to a present experience. In this way the past helps us to know the present. This kind of a connection between ideas is called association through similarity and may be stated as follows: "Present actions, sensations, thoughts or emotions tend to revive their like among previous recurring states."

Association by similarity is the method of acquiring new ideas by bringing into use ideas already acquired. Association by similarity is the general principle of all intellectual acquisition. This linking on new ideas to old ones because the old ideas apperceive a similarity in the new idea is called *apperception*. The trained teacher should persistently keep this fact, not only in his own mind, but before the minds of his pupils. This he can do by a series of well-arranged questions and illustrated examples. Pupils will soon see that lessons and subjects are related, and that interest and progress depend on a clear understanding of the relation. When this important and universal fact is clearly seen a majority of pupils will become interested and studious.

Association by Contiguity.— "Mental modes occurring together or in close succession adhere, so that the after recurrence of any of them *tends* to suggest the others." The sight of one suffering from any

cause suggests a remedy; the sound of a shot from a pistol suggests the roar of a cannon; the smell of a perfume suggests the lady to whose dress the faint odor of it clung when I met her years ago. The law of contiguity only *tends* to suggest; it does not always suggest. If the conjoint attention given the objects when first seen in consciousness was passive the presence or mention of one of the elements or images may not suggest the other. The failure in such a case is due, not to the law of association, but to the failure to observe the laws of mental acquisition.

One letter of an alphabet suggests the next and so on; a line of a familiar poem suggests the succeeding line, this the next until the whole poem is recited. A visiting friend once asked a little Irish boy his age; the boy replied: "I was seven years old the day the pig died." The reply is suggestive, because it shows that the boy had associated what to him were two important events in time—his birthday and the death of his pet pig. Teacher, do as the Irish boy did; associate important events; be sure that the events are important, then each will help to hold the other in memory. A fact as we have seen may be related to another, because the two occurred together in the same place, or at the same time, or because the two are similar in some respect.

If you think about a mountain it may make you

think of a picnic you attended on its summit. The thought of the mountain and the thought of the picnic were in the mind at the same time; that is, the two elements were part of the same state of consciousness or parts of the same experience. This kind of connection between ideas is called association through contiguity and may be generalized as follows: "Presentations or impressions which occur together or in immediate succession will afterwards tend to revive, recall or suggest one another." From the definition it is seen that the law of contiguity covers two kinds of connections or experiences, those of space (occurring together) and those of time (occurring in immediate succession.)

Association by similarity or rather by resemblance is strongly marked off from association by contiguity. Similarity or resemblance brings together experiences widely apart in time. Thus a horse I saw to-day in St. Louis reminds me of one I saw in Independence, Mo., three years ago. Contiguity associates ideas, images, and events which were adjacent in our experience, contemporaneous, or immediately successive in time, and things contiguous in place. Thus I am reminded of a lecture I heard by seeing the hall in which it was delivered, or of Mr. Jones by passing the house in which he once lived. This form of association covers all cases where one element recalls

some other which has been coexistent with it in space. If ideas once in consciousness did not tend to combine and suggest one another, we could not form fixed habits among our ideas or accumulate knowledge.

Association by Contrast.—The least valuable of the three laws controlling the association of ideas is association by contrast. By contrast is meant that an impression, object or event tends to call up the image of its opposite. This law or principle is questioned. It is difficult to see that black suggests white; poverty, wealth; a level country, a mountainous one; a tall building, a low one; a handsome lady, a homely one; virtue, vice; and so on. It is difficult to see how association by contrast aids retention or acquisition. The force of contrast is best seen in setting in bold relief opposites. Contrast enables the casual observer to see differences he might not see without it. The chief use of contrast is to arouse attention and thereby stamp deeper on the mind the lesson taught or the impression sought. The sum is this: The intensity and vividness of the original impressions, the frequency of their revival and the mental habits of the individual determine the associate force of ideas. The value of every school exercise is measured by the character of the pupil's experience during the same. The mere reiteration of text-book facts and moral maxims never made anyone better.

The essential thing is that the mind grasps the ideas together. The objects may be thousands of miles apart and separated by an interval of many years. If Emerson and Carlyle were in consciousness at the same time the mention of one will tend to bring before the mind the other. That is, ideas which were once a part of the same mental state tend to suggest each other. The mention of the name of one great man often suggests the name of another great man without regard to time or place. The mention of Emerson, the greatest American essayist, may bring to mind Carlyle, the greatest of modern English essayists, if we have been in the habit of thinking of one in connection with the other. The one great fact of association of ideas is, that what is true of two impressions is true of any number. Any one of a group of two or more impressions may call up the image of any other of the group. In a series of events each link tends to call up the adjacent link; thus the entire series of any number of connected events is again brought into consciousness.

The tendency of the mind to call up or suggest ideas and images that were once in consciousness together or in immediate succession depends on the character of the attention given when the objects were first in consciousness, and on the frequency of their occurrence. The oftener two percepts are in

consciousness together the stronger will be the resulting bond of association. Often many repetitions of the original experience are necessary to make a permanent association. The number of repetitions required depends on the mental habits of the individual. The grouping of sensations into perceptions, the combining of percepts into concepts, the combining of concepts into judgments, the combining of judgments into syllogisms, the combining of trains of images in reproduction illustrate the combining tendency of the mind, and the dependence of every mental operation on the preceding one. All actions of consciousness appear to be continually striving to combine with past and simultaneous actions.

The laws of association suggest much to the thoughtful teacher. They suggest that one great art of teaching is the art of finding connections between seemingly isolated facts and showing that the facts are related to what the pupil has already learned, that the new lesson is only an extension of what is already in his mind. If it were possible for the mind to retain unrelated ideas they would be worthless, for relation is the measure of value. This fact the pupil will readily see and feel if he really knows what he has learned. In too many schools pupils learn much they never know. What the pupil really knows he can use at any time and in any place. The pupil's ability to

use his learning distinguishes the teacher who trains his pupils to think from the teacher who is content with the mere recitation of text-book facts in the language of the authors.

A memory stored with facts without the ability to apply them is a sorry condition. Mere recitation appeals almost exclusively to the memory; it does not, cannot develop the power to apply the facts learned. A pupil's ability to use his learning is the true test of a teacher's professional strength. "Truth that has been merely learned," says Schopenhauer, "is like an artificial limb, a false tooth, a waxen nose; it adheres to us only because it has been put on." It does not enrich the life of the learner. Mere recitation will not fix in the mind forms of expression, the meanings of definitions or the application of principles. Use gives meaning to learning. Doing defines; all else is cheap. Man is known, not by his opinions, but by his actions.

Review.—The importance of the laws which govern the association of ideas suggests a brief review of the principles of association, together with additional illustrative examples of each kind of association. Correct methods of instruction recognize that ideas are associated and that retention and reproduction depend on how the ideas were taken into the mind. Chance has no place in the mind world. Mental

power is the product of the same three factors that yield successes in every other department of life—self-trust, high ideals, and persistent effort. Success is seen only in the results which are the logical fruits of a methodical observance of law. First in order of importance in the association of ideas is association by *Similarity*, or *Resemblance*.

Association by similarity, or resemblance, as it is sometimes called, associates ideas that are in any respect similar. That is, the suggesting state and the suggested state must be similar; a present idea recalls a past similar idea without reference to time or place. Examples: I see a man and recognize him as having seen him before. The recognition does not involve the ideas of time and place. The present mental state is merely associated with a past similar state. I hear a sound, as that of a steam whistle, and recognize it as indistinguishable from a sound I have often heard before. The present suggesting state revives a past mental experience because it is similar to it. The taste of a sweet apple I have just eaten reminds me of the sweet apples I ate last winter. The slightest similarity or resemblance of a present mental state to a previous experience tends to recall the previous experience and its associations.

Association by contiguity associates ideas that have been adjacent in space or consecutive in time. “The

idea of curling smoke suggests the fire that produces it." The odor of a rose may suggest the form and color of a rose. If you think of the capitol building you will probably think of the distinguished Congressman you heard speak while you were there. If you recall the appearance of the White House you will probably think of the man who as President occupied it at that time. The law is a simple one and is easily proved by the routine experiences of every-day life. The law is: Ideas that have been conjoined in space or in time have the power of recalling one another. "In other words, objects existing by the side of one another, events following one another become so associated that one calls up another." This is due to the fact that the objects and events were once together in consciousness. (Teacher will illustrate.)

Association also explains retention and condemns cramming. James says: "Retention means *liability* to recall and it means nothing more than liability. The only proof of there being retention is that recall actually takes place. The retention of an experience is, in short, but another name for the *possibility* of thinking it over again or the *tendency* to think it again with its past surroundings. Whatever accidental *cue* may turn this tendency into an activity, the permanent *ground* of the tendency itself lies in the organized, neural paths by which the *cue* calls up the

memorable experience." A careful study of the foregoing quotation shows that retention depends on brain conditions; that the mind is not a *place*, stored with odds and ends, a sort of *pantechnicon*.

APPERCEPTION.

"Apperception is that form of mental activity under which percepts are brought into relation with our previous intellectual and emotional states and assimilated with them." 2. "The bringing to bear what has been retained of past experiences in such a way as to interpret, to give weight to the new experience." 3. The meaning in the mind. "Apperception," says Wundt, "is the act of comparison under the eye of attention, *i. e.*, the discernment of the relation between objects." It has value as emphasizing an act common to all cognitive states, and thus unifying their exercises. In general we may say whenever by an act of attention mental states are unified into a related whole it is an act of apperception. As the word *apperception* figures prominently in the pedagogics of to-day, it is well to learn just what the word means, and what it is to apperceive an idea or relation.

James says: "Every impression that comes in from without, be it a sentence which we hear, an object of vision, or an effluvium which assails our nose, no sooner enters our consciousness than it is drafted

off in some determinate direction or other, making connection with the other materials already there, and finally producing what we call our reaction. The impression arouses its old associates; they go out to meet it; it is received by them. It is the fate of every impression thus to fall into a mind occupied with memories, ideas, and interests, and by those it is taken in." The foregoing quotation is a concise and simple explanation of the meaning of the word *apperception*, as well as a clear illustration of what is meant by the phrase *apperceiving process*.

Apperception — Retention.—The mutual relation which always exists between apperception and retention is seen in the following definitions of these two terms. Apperception has been defined as: "The action of the mind upon the material presented to it." Retention has been defined as: "The action upon the mind of this material when apprehended." As ideas are apprehended by using the stock of ideas on hand, it follows that every apprehension changes consciousness; that every apprehended idea in some degree changes the structure of the mind, because the mind has not only acted upon it, but has acquired additional material. Mind apprehends in only one way, by its own activity. Mind retains in only one way, by relating and associating ideas. These facts suggest much to the teacher; they suggest carefully

graded lessons as interest depends on the relations of the known to the unknown.

The mind grasps the things of the outer world by the aid of what it has hitherto experienced in a similar direction. The act of using previously acquired perceptions in relating and assimilating new impressions is called apperception to distinguish it from perception. Nothing new can become knowledge until it is psychologically associated with something already in the mind resembling it. If the new impression cannot relate itself to something already in the mind it soon passes out of consciousness. This psychological fact is easily verified by introspection and bears directly on the work of the teacher. Sully says: "Association by similarity illustrates the general principle of all intellectual acquisition, that the mind only gains full possession of a new idea, fact, or truth when it assimilates it to kindred elements of cognition already acquired. This attaching or linking on of new ideas to old is *Apperception*. We apperceive or mentally appropriate a new idea through the medium of some similar idea or group of ideas already in the mind." (Teacher will illustrate.)

The new idea when assimilated with the ideas already in the mind is said to be *apperceived*; the old group is called the *apperceiving group*. "The apperceiving conceptions usually stand like armed soldiers

within the strongholds of consciousness, ready to pounce upon everything which shows itself within the portals of the senses, in order to overcome it and make it serviceable to themselves." The theory of apperception clearly suggests to the thoughtful teacher at least two things: (1) that the minds of the pupils must be prepared to "take in" the new matter; (2) that the new ideas must be akin to the old and presented in a methodical manner. The teacher can "dovetail" the new ideas into the old only when he knows how much his pupils know that is akin to the new ideas, when he thoroughly understands the subject himself and has tact in presenting it. The apperceiving group of ideas should be aroused from a passive state to an active or even aggressive state by the teacher before the pupils are called on to recite the new matter.

The most tactful and learned teacher cannot interest a pupil in any object or principle which is wholly new to the pupil. There being no relation between the old and the new interest is impossible. The mind must make the old interpret the new. When the mind receives a new impression it refers it to impressions previously received. The power of the old impression to interpret and classify the new material depends on the strength, clearness, and completeness of the old impression. This self-evident

fact is also a valuable classroom fact. Only what the pupil thoroughly learns is helpful to him in acquiring new knowledge. Weak and indefinite perceptions have little apperceptive power. Indefinite teaching leaves vague and indefinite impressions if it leaves any. Exact teaching is the only teaching that stimulates mental activity on the part of the pupil and compels him to realize himself. The pupil's ability to recall and relate what he has studied depends on the method of the teacher and the character of the pupil's habits of study.

A present impression produces such an effect on the mind as past experiences render possible. The most learned and most elaborately illustrated lecture on electricity would be as sounding brass or a clang-ing cymbal to one who had never heard of electricity. The mind of the pupil, like the field of the farmer, should be prepared for cultivation before the seed is planted. The lesson and instruction of to-day should prepare the pupil for the tasks of to-morrow. The knowledge acquired to-morrow can only be an enlargement and an extension of what had been previously acquired. This fundamental fact of psychology should be studied, mastered, and applied in the classroom. Apperception is mental appropriation. It is a higher mental process than perception. Perception combines the raw material of knowledge into

objects; apperception uses these accumulations in the acquisition of new knowledge.

We always see things in terms of our past experience. The brain is a changed organ after each perception. A new perception feels the deflecting force of former perceptions. Halleck says: "A woman may apperceive a passing bird as an ornament to her bonnet; a fruit grower, as an insect killer; a poet, as a songster; an artist, as a fine bit of coloring and form. The housewife may apperceive old rags as something to be thrown away; a ragpicker, as something to be gathered up. A carpenter, a botanist, an ornithologist, a hunter, and a geologist walking through a forest would not see the same things. These men would have brains which would respond differently to the same stimuli. The ornithologist might hear every bird note; the botanist, with equally keen ears, might not have an auditory sensation of sufficient intensity to affect consciousness."

The more clearly a pupil understands a given problem or principle, the more readily and correctly he will use his knowledge in the solution of new problems and in applying new principles. When a pupil sees clearly that length multiplied by width gives surface he readily sees that surface multiplied by depth gives volume or content. When he sees clearly that a phrase is used as a part of a speech he will readily

see that a clause is used in the same way. Only what is clearly understood is helpful in acquiring new knowledge. Indefiniteness is the discouraging weakness of much teaching. Neither intellectual pleasure nor profit accompanies vague impressions. As the mind is awakened and developed only through its own activity, the pupil should be required to use his learning, to give expression to his thoughts and feelings. His school opportunity is valuable to him only to the extent that it compels him to realize himself through his own efforts.

In a large sense apperception is to the mind what digestion is to the body. The senses bring to the mind the raw material of knowledge. On this raw material the mind exerts its assimilative function. This act of the mind is called apperception, a term that should be as well understood by the teacher as the word digestion is by the physician. It is this mental fact that requires the teacher to know that the pupil clearly understands what he has recited. The teacher should see to it that the pupil has more than learning; he needs understanding. His school exercises should be real experiences. The formalism of the recitation should not permit the pupil to hide himself in a surface exhibition of mere words. The pupil should be required to illustrate and to apply every text-book definition and rule he quotes. It is by af-

firming that he examines, by showing that he looks, by composing that he thinks, and by doing that he becomes trained and educated.

One can understand only what is akin to something already existing in himself. "We hear only what we know." "We see only what we have been trained to see." The present impression produces such an effect on the mind as the past history of the mind renders possible. That is, we learn new things by bringing into use our past experiences. What we are not, we can neither know nor feel. We can neither know, nor see, nor touch, nor taste, nor smell, except as we have learned. Experience is the key that unlocks the beauties of the physical, intellectual, and moral worlds, the only means whereby man becomes real, the only test of relationship and reality. The cold and almost pulseless formalism of many teachers will yet give place to experience meetings, to meetings held by teachers of culture, purpose, and enthusiasm.

The points of likeness in a new object to objects already in the mind are the bonds which connect the new experience with the old. The combining tendency of the mind, this grouping together like things, makes classification possible. It is through this combining and grouping tendency of the mind that we form classes of objects or concepts. An illustration or so will verify the foregoing statement. A little

girl who had never before seen a green squash was asked what it was. She looked at it closely for some time then answered: "It's a pear." Another girl who had never before seen a fern called a pot of ferns a pot of green feathers. A boy while fishing caught an eel and called it a snake. A South Sea Islander, who was familiar with sheep, called the first hog he saw a grunting sheep.

In each of the above illustrations the mind used its old stock of concepts in an effort to relate and classify the new objects. The life of the close observer is filled with experiences similar to those given. Apperception, like all other forms of mental activity, is best understood by observing the operations of one's own mind when new objects or new thoughts are presented for assimilation. In psychology introspection translates text-book statements and theories into personal experiences. Every statement made in psychology should be tested and thus made a living truth. Introspection, a little looking-inward on the working of the mind, will make it clear to the youngest teacher that the mind uses the knowledge it already possesses in interpreting new impressions. Acquiring more knowledge really means increasing and extending the knowledge already acquired.

Pedagogy is applied psychology. There is nothing miraculous in the results of a successful teacher.

He reaps what he sows. Results are the only proper and adequate measure of a teacher's methods. "By their fruits ye shall know them." There is no other measure of one's fitness, purpose or character. A feeling recognition by the teacher that his methods are founded upon correct principles does much to sweeten his labor and to strengthen his faith in himself. The inspiration which yields success in the schoolroom is born of intelligent aims.

Teacher, learn how your own mind acts that you may know how the minds of your pupils act. By becoming thoroughly acquainted with yourself you will better understand your pupils. By learning how you acquire knowledge you will learn how to instruct others. If you would know the laws that govern the growth of mind you must experiment with your own mind. In the study of psychology the need of experiment with the self is exceedingly great. The general facts of psychology are best seen in the inductive processes which discovered them. Every teacher should discover these facts for himself through a study of self. Read psychology and books on method, but study self.

Many earnest teachers have studied text-book psychology without profit. They have studied words, not the self. Psychology is the study of the self. It cannot be learned from text-books alone. In text-

books we find the facts of psychology, but not the subject of study. Text-book facts can only aid one in the study of the laws which govern the actions of his own mind. The study of psychology is a study of mental processes and products rather than a study of text-books. The essential facts of educational psychology are easily within the comprehension of the average high school pupil and should be mastered during the high school course. The teacher who knows nothing of psychology must copy the methods of others. If he copies after good models he may succeed as a teacher; if he copies after bad models he must fail as a teacher. In either case he is a machine. His instruction lacks the force of personal power; it lacks the enthusiasm which compels attention and which leads pupils to independent thinking.

The work of the school and of life in general cannot be well done mechanically. Every successful teacher is partly original. Success depends more on what is within than on what is without. No one who blindly copies the methods of another can ever make an inspiring teacher. Back of every success is personality, intelligent purpose, courage, and enthusiasm. A machine teacher does not carry into his work any of the primary elements of success. The teacher who does not study methods as well as text-books must always remain a copyist. A knowledge of correct

methods is as necessary as a knowledge of the subjects taught. The teacher must know the subject and know how to teach it.

As the new matter must find its way into the mind by using what is already in the mind, it follows that much of the detail of most school text-books should be omitted—omitted because the mind has retained only the important facts of previous experiences—omitted because details are always embarrassing. The detail of geography, history, and the exceptions in grammar should be ignored in the grammar grades. Three-fourths of the dates in most school histories, of the names and locations of places in most school geographies, should be omitted. At least one-half the problems in most arithmetics, the last half of every subject, should be omitted, and the greater part of the remaining problems should be solved orally. Slate and pencil should be used only when the detail of the solution cannot be carried in the mind without these aids. Only the most direct solutions expressed in concise language should be accepted. Hunting for answers under the direction of printed rules does not fit the pupil to accept a situation in a business house, nor train him to rely on himself. The routine reiteration of the minor facts of text-book subjects does not develop mental or moral power, cultivate the memory, the imagination, or the will.

TEST QUESTIONS ON THE CHAPTER.

1. Define the phrase, association of ideas.
2. Give two original illustrations of associated ideas.
3. In how many ways are ideas held together?
4. Quote the law of similarity. Express same in your own words and give three original illustrations.
5. Quote the law of contiguity. Give three illustrations.
6. Quete the law of contrast. Give three illustrations.
7. What is the essential thing in associating ideas?
8. On what act does the association of ideas chiefly depend?
9. Define apperception. Illustrate the process by giving original examples.
10. What is meant by the phrase, apperceiving group?
11. What is meant by apperceived? Illustrate.
12. Give two illustrations, showing how the apperceiving group "takes in" a new idea.
13. Show in what important particular apperception differs from perception.
14. Distinguish between cramming and training.
15. What is meant by assimilation of knowledge?
16. Distinguish between memory recitations and thought recitations.
17. How will a teacher find out whether the pupil understands what he flippantly recites?
18. Why did the child call the first donkey he saw a horse?
19. Is apperception a new or an old idea?
20. In what way can any one test the truths of psychology?
21. In what important particular does psychology differ from the other sciences?

CHAPTER VII

CONCEPTION

The senses furnish us knowledge only of individual objects. The intellectual operations involved in *perception*, *memory*, and *imagination* deal with individual things and events. To perceive is to perceive an individual object or group of objects regarded as one group. To remember is to remember an individual thing. To imagine has reference to some particular object. Every perception is an individual perception, as the perception of *this* tree or *that* horse. Every memory picture is an individual picture, as the image of *this* boat or *that* locomotive engine. Every picture constructed by the imagination is an individual picture, as the picture of an ideal park or an ideal fountain.

Consciousness, like the senses, suggests to us only particular judgments with reference to a single fact or to a single individual. I am conscious of a pain which makes me groan or of a feeling which makes me tremble. I am conscious of *this* thing or *that* thing. Individual notions or ideas of particular things are the primitive basis of intelligence, the

foundations on which we build, the first story of the mind. Correct teaching trains a pupil to pass from the individual notion to the general notion. Every general notion necessarily implies a number of individual notions to which it relates. Without individual notions mental training could not begin; without the power to attain to the general notion intelligence would not be human. The power to enlarge and extend the individual notion, to classify and consider objects in classes, distinguishes the animal man from the lower animals.

Before discussing thinking as involved in conception, judgment, and reasoning, it is well to note that thought is involved in perception, memory, and imagination. Thought begins to develop in early life. When the child perceives he thinks. When he distinguishes one object from another he discriminates, and discrimination involves thinking. When the child says *this* is a pencil and *that* is a book, he thinks. In memory thought is always present. One cannot call up the image of his friend's face until he separates it from other images by bringing into consciousness the characteristics which do not belong to other faces. In imagination thought is actively present. The mechanic who is at work on a machine spends much time in thinking about the relation of this part to that part and of the parts to the complete

machine. The ideal machine is present to the physical eye through the mind's eye.

In the higher processes of intellectual development, in conception, judgment, and reasoning, we are concerned, not with single objects in their concrete fulness of individual peculiarities, but with the points or characteristics common to a class of objects. In formal thinking we bring together many things under one head. To do this we must trace out the similarities of the things brought under the head or class. "Thinking is discrimination and assimilation performed on the results of sense-perception and reproduction." When we perceive an object as a concrete whole thing with all its peculiar characteristics we *apprehend* it; when we regard it under some common aspect we *comprehend* it. This practically is the difference between perception and conception. Perception, memory, and imagination deal with individual notions; conception with general notions. Perception individualizes; conception generalizes or forms general notions.

Forming Concepts.—Concept-forming or conception discovers similar features or characteristics in objects and unites them. In order to combine the like marks common to a class of objects, the mind must compare and discriminate, and comparison and discrimination involve thinking. The active mental

process by which concepts are formed naturally falls into three stages—comparison, abstraction, and generalization. The mental act of noting resemblances and differences in objects is called *comparison*, the first step in forming a concept. The second step is called abstraction. In abstraction unimportant detail is ignored and the attention given to the qualities common to the objects. The third step is called *generalization* or naming the class. The three seemingly separate and formal steps in the formation of a concept are so intimately related and interdependent that for all practical purposes they may be regarded as different modes of the same mental act.

A number of objects having a certain degree of likeness must be brought before the mind. These objects may be actually present to the eye or called up by memory. When the objects are before the mind we compare them by a special act of attention in order to see how far and in what respects they resemble each other. Having seized by an effort of abstraction the several marks of likeness we generalize; that is to say, we form a notion of things which have the distinctive marks we have detected. Out of the percepts or images we have brought together by a special act of attention we form a general notion of a class of things. This general notion is called a concept. The greater the vigor of mind thrown into the

act of abstraction the clearer will be the general notion. A careful study of this paragraph should make the process of forming general notions clear.

How does the child form the concrete concept *dog*? He must first see several dogs. The features common to many dogs stamp themselves on the mind of the child. Next he abstracts or draws off the features common to the dogs and holds them in memory as a general notion derived from seeing several dogs. The child, having seized the common features of several individual dogs, generalizes or forms a notion of a class of dogs.

Likewise the concept *horse* is formed. It stands for the animal *horse* in general, for all breeds of horses, for horses of all sizes and colors. It is formed by the assimilation of the marks common to all horses; hence it stands for the universal or ideal horse. In the concept *horse* the individual horse is included, but his identity is lost, as only the distinctive marks common to his class of objects are combined in the concept *horse*. In forming the concept *horse* the child abstracts or sets aside the marks common to all the horses he has seen, and combines them in a general notion. These several processes, consciously or unconsciously, accompany each other in forming every concept. The importance of this subject requires additional illustrative examples.

How does the child acquire the idea *boat*? The process is a simple yet complex one. He must see many kinds of boats. He must compare the boats to find the points of likeness and difference. He must abstract or draw off the points common to all the boats. He must then combine into one bundle the points common to all boats. He thus forms the concept *boat*. The bundle of common characteristics represents the general notion *boat*. The mention of an unqualified common noun always brings into consciousness the general idea of an object which possesses a few qualities that separate it from all other classes of objects. The mention of an unqualified common noun never brings into the mind an image; it brings into consciousness a general idea of a class of objects. The noun *boat* does not bring into mind a large boat, a small boat, a flat boat, a row boat, a sail boat, a steamboat, or any other particular boat, but only the idea *boat*.

How do we form the concept *chair*? The image called up by the remembrance of a particular chair is a revived percept, the picture of an individual chair. But the impression that comes into consciousness when you mention the common noun *chair* is the general notion of a chair, a notion that is derived from observing several kinds of chairs. The mention of the noun *chair* does not bring into consciousness a

cane-bottomed chair, a rocking-chair, a rotating chair, or an upholstered chair. It brings into consciousness the general idea *chair*. It does not revive the picture of a special or particular chair because it does not suggest an individual chair.

The first step in the process of forming a concept is comparison. The student in botany begins the study of leaves by making a collection of many kinds of leaves and noting their similarities and differences. By comparison he notes that some of the leaves are netted-veined and others are parallel-veined. Next he views the leaves with reference to the distinctive marks of each and separates the leaves into two distinct classes; that is, by abstraction, he draws off the distinctive and essential marks, netted-veined and parallel-veined, and forms the classes netted-veined and parallel-veined leaves. The class name, netted-veined or parallel-veined, does not bring to the mind any particular leaf, but the general idea of the class whose distinguishing mark or marks it represents; hence each term is a concrete concept, a class name. (The class will form the concept *book*.)

We may now define conception and concept: 1. "Conception is the power to think individuals into classes; the power to think the many into the one." 2. "Conception is the name of the mental process which forms concepts or general notions."

Concept.—1. "A concept is the general notion formed in the mind by the fusion of the several characteristics common to a class of objects." 2. "A concept is the representation of a thing through its distinctive marks or characteristics."

From the foregoing illustrations and definitions it is clear that a concept is a combination of judgments, each of which can be affirmed of every individual object of a class. Thus it is seen that in forming a concept there is involved what is known as the second aspect of thinking, judging. It should also be clear that the clearness and permanence of a concept depend on how it is formed, on the completeness of the several mental acts which create it. The permanence of knowledge depends on how it is acquired. The value of instruction depends on its quality.

The image formed by uniting the sensations that come from an object is called a percept or individual notion. In somewhat the same manner the points common to a class of things may be combined and form what is called a concept or general notion. A concept or general notion is unlike a percept or individual notion in that it cannot be imagined or pictured to the mind. I can imagine or picture the individual dog, *Fido*; but I cannot imagine or picture the idea *dog* which is presented to my mind by pronouncing the word *dog*. The following quotation from Dewey's

Psychology is a concise and beautiful description of *conception* as the means of apperceiving universal truths: "Conception, as the apperception of the universal, the grasping of it in a single act or thought, therefore, is not a new kind of knowledge distinct from perception. It is the more complete development of the element which gives meaning to the percept, and which renders the act of perception possible. When we perceive a book, in the very act of perception we classify it; that is we bring it under the concept *book*."

Perception is not passive reception; it is the active outgoing construction of mind. In perception, however, these elements of idealization, of relation, of mind activity, are not consciously present; they are absorbed, swallowed up in the product. In conception they are definitely brought out. The self here makes its own idealizing, relating activity its object of knowledge; it grasps this activity, and the product is the concept. Conception is the development of the idealizing activity involved in all knowledge to the point where it gains distinct conscious recognition, freed from its sensuous detail. (The teacher will simplify and illustrate this fact.)

The concept is a product of thought and has no external, objective existence apart from the individual objects whose common points of resemblance it com-

bines and represents. Only as much of the percept as is common to the objects is used in forming the concept of the class. We cannot refer to many things except by combining into a bundle the points or marks common to each of the many. This bundle of marks is called a concept. It is not individually representative, but combines in a notion (not an image) the marks, traits, or qualities common to each of the class. It is to be noted that while a *Percept* has for its subjective aspect a sensuous element, the objective form of which is an "Image," a *Concept* has for its subjective aspect a *thought-element*, the only adequate objective form of which is a *word*. "If human intelligence were limited to representing individual objects presented by sense-perception, our minds would, like a mirror, reflect only what was about us at the time."

Thought Defined.—1. "Thought is representation by means of a general notion." 2. "Thought is the act, process, or power of thinking." The word *notion* as used in the definition designates the product of thought, and is opposed to *idea* or *image*. A general notion is not a form of sense-knowledge; it is wholly a mental product, the representative of a class. The student must distinguish between individual notions (percepts), and general notions (concepts). He should see clearly that individual notions

are the products of sense-perception, and cannot be made the logical subject of thinking, for we think only in class names. The general notion or concept is the ultimate product of thought.

Thinking Defined.—“Thinking,” says Dewey, “is knowledge of universal elements; that is, of ideas as such or relations. In thinking the mind is not confined, as in perception and memory, to the particular object or event, whether present or past. It has to do, not with this man whom I see or the one I saw yesterday, but with the idea *man*—an idea which cannot be referred to any definite place or time; which is, therefore, general or universal in its nature.” To think is to conceive, to form concepts. We cannot *think* a particular man; we think man in general; that is, we think the *class* qualities of man.

Thinking, like the simpler form of cognition, consists in discrimination and assimilation, in detecting differences and agreements. That is, in thinking we discriminate between the similar and the dissimilar in objects; we assimilate or combine the similar points or marks. The mental product thus obtained by discrimination, assimilation and combination is a concept. To think about a class of objects we must first think the points possessed by each of the class into a general notion; that is, we must first eliminate individual marks, then combine the marks common to all.

Aspects of Thinking.—We commonly distinguish three aspects of thinking. These are conception, judgment, and reasoning. They are not three distinct acts, not even three successive stages. No one of the aspects could occur without each of the others. Conception is the least, and reasoning the most developed. In thinking we use the general notion or concept as the logical or general subject; as, *man* is mortal; *mountains* are high elevations of land. Next in order is the combining of two concepts in the form of a statement or proposition; as, *horses* are *animals*; material *bodies* have weight. This aspect of thinking is called *judging*. Next in order is the comparison of judgments or the passing from certain judgments to other judgments or conclusions; as, horses are animals; “Caleb” is a horse, hence “Caleb” is an animal. This, the third aspect of thinking, is called *reasoning*. (Teacher will further illustrate.)

Any unqualified common noun is a concept term. The terms boy, girl, sailor, teacher, preacher, mercy, piety are concept-terms. The mind quickly passes from the percept to the concept; as, *a black sheep* (percept); *sheep* (concept); *the man* (percept); *man* (concept). The concept *dog* can be as readily brought into the mind as the percept of a dog through the senses. The concept *dog* means nothing except in reference to certain individual dogs. The general

notion or concept, perfected through repeated perceptions, is the ultimate product of thought. As a concept involves only the representation of the several marks or attributes common to a class of objects it affords only a one-sided and inadequate knowledge of things. (The teacher will explain and illustrate this fact. The class will form a concept.)

Conception—Attention.—Conception or concept-forming involves comparison, abstraction, and generalization. All thinking is based on comparison and comparison is impossible without attention. By comparison is meant the voluntary direction of the attention to two or more objects at the same time or in immediate succession to discover their differences or their agreements. In comparing two or more objects to determine in what particulars they are alike or unlike a special effort of concentration is involved. The attention must pass rapidly from one object to another in order to note points of likeness or points of unlikeness. It is clear that attention is the essential constituent in the mental act called comparison. Attention is the essential constituent in every mental act, the instrument of education.

Concept—Percept.—A percept combines into a whole all the marks or qualities of an individual object made known through the senses; hence a percept is a complete form of knowledge. A concept com-

bines into a general notion only the essential and distinctive marks common to each individual of a class of objects; hence a concept is an incomplete form of knowledge. A percept is based on sensation, is presentative, gives knowledge of the presence of an individual thing, is a reality; a concept is based on *images*, is knowledge of a class of objects, is a symbol. The objective form of a percept is an image; the objective form of a concept is a *word*, an unqualified common noun. A concept embraces comparatively few of the many marks represented in a percept. A representation becomes confused when we attempt to comprehend in one notion many marks common to a class of objects.

The basis of full and accurate conceptions is full and accurate perceptions. The child should be led to detect similarities between things, and to group things into classes, according as they do or do not possess certain qualities. Pestalozzi says that it is the chief business of education to pass from distinctly perceived individual notions to clear general notions. In all this it is essential that the learner should do the work. The faculty of independent thinking should be carefully trained. There is a tendency on the part of most of us to let some one else do the thinking; we are only too ready to believe what some one else tells us and to act upon it. Children should be trained

to think for themselves, to regulate, to master, and to assimilate their impressions.

Indistinct concepts are the natural results of indistinct percepts, faulty and hasty observation of individual objects, loose use of definitions and language in general, the lapse of too long a time between perceptions of the individual objects whose common marks the concept holds as an abstract or general notion, and the imperfections of memory. In short, indistinct concepts can usually be traced to poor teaching, to cramming. The method of the teacher should require the pupil to give in his own language an account of the whole lesson. This is the German method and has much to recommend it. “The smooth, connected presentation by the pupil is better than the discourse interrupted a hundred times by the teacher.” Most American teachers pump too much, help too much, talk too much, and scold too much.

It should also be borne in mind that the clearness of the percepts held in the concept depends on the vigorous action of the senses, and that the clearness, completeness, and value of all mental operations depend on interest and attention. Attention is the door to the mind. The teacher might as well talk to the pupil's hat hanging on a hook in the closet as to an inattentive pupil. The pupil that is not in the schoolroom is no more an absent pupil than the inat-

tentive pupil in the classroom. When will the man who pretends to teach school while he is studying law, medicine or theology, and the woman who teaches for pin-money, learn that without the ability to get and keep the attention of their pupils their services are almost worthless?

Conception — Perception.— Perception deals with individual objects; conception deals with classes of objects. Every perception recognizes and retains the individual differences in objects; every conception ignores and cancels the individual differences in a class of objects. A percept is produced in the mind by the reality it represents in the external world. A concept is a mental product produced by combining like points in individual objects. It represents only as much of reality as is common to a number of objects. Every vivid perception makes conception clearer and richer. There is a constant play of to and from going on between perception and conception. Imperfect percepts yield imperfect concepts. The completed product cannot be more trustworthy than the material of which it is made. Distinct percepts mean distinct concepts. By a distinct percept is meant a clear impression of an individual object. By a distinct concept is meant a concept in which the several points common to a class of objects are distinctly represented. (Teacher will illustrate.)

The teacher that cannot see the individual apple in the concept *apple*, or the individual dog in the concept *dog*, is not well qualified to teach school. His individual notions, the foundations of all mental operations, are too hazy to enable him to convey clear impressions to his pupils. Above all others teachers need the power to perceive quickly and adequately. To this end the teacher should ever be intellectually and morally awake. As impressions are apt to become indistinct from lapse of time and imperfections of memory, repeated perceptions are required to keep them from fading out entirely. Reviews, if directed by a competent, exacting, and enthusiastic teacher, perfect indistinct perceptions and establish new relations with other concepts. The concept-forming power is restless so long as it sees common features of resemblance in objects. It is the classifying power of the mind. Classification enables us to put our knowledge into scientific form. The thinking mind seeks to combine things into groups or classes.

Concepts — Association.—Concepts are retained in memory by association with other concepts, and are recalled by suggestion. The concept or general notion *apple* is immediately recalled by hearing the word *apple* spoken. This union in memory of concept and name is called association of “sign and thing signified.” This law of association connects in

memory all nouns with the things they designate. A concept may be recalled by the sight of a part of one of the objects which constitute the class. The sight of the part of an apple is sufficient to recall the complete concept. This form of association is termed association of "whole and part." A concept may be recalled by referring to the time and the place when and where it was formed. The concept *apple* may be recalled by referring to the time and the place where a variety of apples was first seen. This form of recalling concepts is termed association of "time and place." A concept may be recalled by recalling other concepts that resemble it. The sight of a basket of any other fruit that resembles apples would revive the concept *apple*. This form of recalling concepts is termed association of "resemblance." Resemblance supplies the means of recalling a vast number of concepts.

Percepts — Images — Concepts.—In CHAPTER III. we learned that *Sensations* are the first things in consciousness, and that sensations produce *Percepts*. In CHAPTER IV. we learned that *Percepts* yield *Images*. We have just learned that images give rise to *Concepts*. As things which are equal to the same thing are equal to each other it follows that *Sensation* is the basis of *Conception*. In short, *Conception* is impossible without a sensory basis. In a logical course

of study the individual notion, the percept, is treated first. In order to know things in classes we must first know individual things of the class. Knowledge is first individual and concrete, afterwards general and abstract. Perception and memory are associated with actual objects; the processes are concrete and particular. A *percept* is based on *Sensation*, and is presentative; an *image* is based on *Percepts*, and is re-presentative, implies resemblance; a *concept* is based on *Images*, implies knowledge about a class of objects, is a symbol.

Abstract Idea.—In forming abstract ideas, we abstract or draw off certain qualities and consider them apart from the objects to which they belong. The same quality may belong to several objects. We have seen pure snow, pure milk, tasted pure coffee, and breathed pure air. From each of these objects we can abstract the only like quality, the quality of being pure, and regard it as an abstract idea. The qualifying adjective *pure*, from which is derived the abstract noun *purity*, furnishes us the abstract idea. By abstraction we are able to detach from the individual object the quality common to all the objects. We cannot gain abstract ideas through the senses. The senses furnish us only with concrete, individual notions, ideas of single objects.

Abstract nouns are the names of abstract ideas, as

justice, courage, goodness, purity. No one ever saw, heard, tasted, touched, or smelled courage, goodness, or purity. One may have seen white men, white horses, white cloth, but not whiteness by itself. We do not perceive color in general, but the color of such and such an object. The color of a rose is perceived along with the form and odor of the rose. The abstract idea consists of only one quality; the concept always combines two or more qualities. An abstract idea denotes a single quality, regarded as a distinguishing characteristic of many objects or states; hence there is a well-marked difference between an abstract idea and a concept.

The distinctness and tenacity with which memory holds a concept depend on repeated and complete perceptions of the individual objects which form the basis of the concept. This fact bears directly on the work of the teacher. It urges the importance and value of frequent and thorough reviews. As concepts have a constant tendency to fade, to become less and less representative, their distinctness can be preserved or restored only by repeated perception. One clear concept is worth more in training the mind than a score of vague and fading ideas. The clearness of the concept *dog* is precisely in proportion to the clearness of the several percepts of the individual dogs from which it is derived. The individual per-

cepts which form the basis of the concept should be so vividly distinct that the concept can be readily translated into definite images. That is, the character of the concept or general notion depends on the clearness and distinctness of the individual notions whose common features it represents.

As a concept is held in memory by the association of similar concepts, it follows that the power of the mind to acquire and associate new concepts depends wholly on the completeness and vigor of the concepts already in the mind. This fact the teacher should never forget. It should be ever present to him in the classroom. The perceiving and the apperceiving powers of the mind depend, not on the number of perceptions experienced, nor on the number of concepts acquired, but on the clearness and adequacy of the perceptions and the representative character of the concepts or general notions.

Without concepts scientific knowledge would be impossible; without classes thinking would be impossible; for the individual has meaning only in his relation to the universal. All school study is a study of concept relations. The study of language is a study of the meaning and relation of concepts. The effort to grasp the meaning of a word exercises all of the conceptual powers. Before a pupil's imagination can fill a word with meaning he must abstract it and

classify it. This fact suggests that the concrete and pictorial should precede the abstract and technical in school studies; that a reflective use of words should accompany the study of abstract subjects. (The class will show how abstract ideas are formed, and the difference between an abstract idea and a concept.)

Experience.—The old saying, “Experience is a dear school, but a fool will learn in no other,” is a half-truth that needs revision. No one ever learned anything except through experience. Experience is the only means whereby one may know and test the laws which govern mental development. Introspection is the only means of knowing how mind acts. Experience is the only means whereby one can learn that for every sense-idea he must have had a sense-impression; that for every conscious sensation he must have had a percept; that for every general notion he must have had several images. Experience is the only means of acquiring power—moral, mental, and physical. No one can gain experience for another. Experience is an individual matter. All that the teacher can do is to secure proper conditions for the pupil’s self-development. Teacher, make every recitation an enthusiastic experience.

Mental Life.—In early life the mind is concerned chiefly with sensations and percepts. Concepts are formed later, and the real meaning of conception is a

gradual growth. At first the child's knowledge remains for the most part particular and individual; it is of things, of things as individual notions. For years the name *house* means the house in which the child lives; the name *bird* means a particular canary, and so on. Percepts crowd in upon the child's mind until it is quite overwhelmed with the mass of individual notions. Almost unconsciously he finds relief from his burden by the detection of similarity between his percepts. That is, he begins the essential process of conception.

There is a natural tendency of the mind to detect similarity between things and to group them into classes. Thus rudimentary conception begins. This process is the first formal step in mental life, and is materially assisted by the child's knowledge of the meaning and use of language. The child's use of adjectives helps him to differentiate one quality from another and thus to group objects possessing the same quality. This is a definite stage in the process of forming a concept. Language is an aid to conception. In early concept-forming language is the servant; in later concept-forming language is the master. The teacher will not forget that accurate conception is based upon accurate perception, and that it is his business to see that pupils pass from distinctly perceived individual notions to clear general notions.

The teacher should train his pupils to think, to assimilate their impressions, to master them. In too many schools pupils are permitted to become blind slaves and followers of the teachings of others.

Expression is the soul of mental life; it gives vividness to every concept that it clothes in language. Teacher, make the pupils compose every day.

“ At learning’s fountain it is sweet to drink,
 But ’tis a nobler privilege to think;
 And oft from books apart, the thinking mind
 May make the nectar which it cannot find.
 ’Tis well to borrow from the good and great;
 ’Tis well to learn; ’tis God-like to create.”

To educate is to draw out the faculties of the soul, and the expression of original thought is the key to the educative process. Many persons, well-informed persons, who have swallowed loads of learning, and are pretentious arsenals of facts, have little or no education. On the other hand, those whose available stock of information, of mere memory facts, is very limited, are often well educated. They perceive quickly and correctly, and apply readily. All their powers are developed for instant use.

“ Composition is the one school exercise that awakens a pupil to his highest state of self-activity.” Every growing soul struggles to express itself, to give vent to pent-up thought and emotion. Child and adult alike need expressional vent. Expression awakens,

develops, and realizes. Expression, next to the hope of immortality, is the highest yearning of the human spirit. It is the foundation of all art, from the earliest daub of the embryo painter to the architectural creations like St. Paul's or the Parthenon. Further, the effort at self-expression is of itself the most educative process that a human being can exert upon himself. A pupil cannot acquire the art of expression by merely reciting the laws that govern the expression of thought. Thinking is the only remedy for slovenly expression; revision the only cure for verbosity. Teachers should remember that any method of teaching that does not enable a pupil to express his ideas clearly and forcibly is a failure.

Composition in some form should be a daily exercise in the grades where penmanship is taught. In the high school grades composition should have a very conspicuous place in the daily programme. Many a bright and deserving young man has failed to secure a desirable position because of his badly-constructed letter of application. The average eighth grade pupil cannot write a correctly and concisely worded letter or a clean, strong composition on the most familiar subject. He has not learned to give expression to his impressions. He needs methodical training in sentence-building, in copying, in reproduction, and in writing compositions on familiar sub-

jects. The special need of ninety-nine pupils in one hundred is not memory recitations in technical grammar, but methodical training in the use of good English. The study of the dry facts of grammar cannot be interesting or profitable to young pupils.

Frequent, written reviews in language, grammar, geography, and history characterize good teaching. It is with pencil and tablet that accuracy of expression is best secured. "Conversation makes the ready man, reading the full man, writing the exact man." Accuracy in spelling, in punctuation, in capitalization, in paragraphing, and so on, should be required. The results of the written recitation should be critically examined by the teacher with reference to the language used. If the pupil's language is not pure, if his spelling and punctuation and capitalization are not correct, he should be required to write the lesson again. Slovenly work should not be accepted. The written recitation is a real test of the pupil's class standing, also of his moral character. It presents the pupil to himself and points out to him as well as others, in no uncertain manner, his weaker points.

A methodical study of the primary meaning and correct use of words should constitute a part of the pupil's daily task during the whole of his school life. An unabridged dictionary and a book of synonyms should always be within reach of every teacher and

student of English. A knowledge of the correct forms of language avails but little without the command of a vocabulary sufficient for the dress of the thought to be expressed. The teacher should use every opportunity to enlarge the pupil's vocabulary by calling his attention to the choice between words which have nearly the same meaning. The purpose of this form of word-study is to develop a discriminating sense of the fitness of a word to express the exact meaning intended. The use of the right word in the right place is the one distinguishing mark of difference between the trained and the untrained mind, between the cultured and the crammed. The facts that a pupil learns in school will be of comparatively little use to himself or to society if he cannot clearly and forcibly express his ideas.

Accuracy in the use of language is acquired only through the reflective use of words in the expression of original thought, and by the imitation of excellent models; not by rules and theory. Clearness in speaking and writing is acquired only by thinking and writing. It is an intellectual quality and can be cultivated in the common schools. Threescore and ten years spent in analyzing sentences and parsing words will not materially increase the pupil's vocabulary or develop in him a love for literature. The barrenness of the merely formal in the study of English is seen

the moment the pupil is required to write a composition. The formal cannot develop thought power, cultivate expression, or inspire purpose.

It is generally agreed that English is not only the most important subject taught in the schools, but that the methods in general use do not cultivate the art of expression or develop a love for pure and inspiring literature. We believe that the lack of interest on the part of a large majority of pupils in the study of our mother tongue is due to the stupefying methods of teaching it in many schools. Until composition takes the place of mere recitation; until our teachers fully recognize the simple fact, "That all the lecturing in the world will not enable a man to make a shoe"; until word-study and the use of words in original sentences becomes a daily exercise in all the grades below the high school—until these essentials of method in English are substituted for the present routine, little progress will be made by our pupils in the mastery of the structure of the sentence.

The method of the teacher should keep the pupil constantly on his guard in all he says during the recitation. The pupil should be required to express in his own language the important facts and principles of the lesson. The pupil is not trained by cramming his memory with the language of text-books. Culture is not a gift; it is a progressive development, the

result of the mind's own activity. Whitney says: "A pupil may be master of every grammar and rhetoric, of every text-book on English literature, and yet be unable to express well his thought or have an intelligent knowledge of poetry and prose."

Clear thinking is a safer guide to correct expression than the rules of grammar and rhetoric. Definite convictions usually clothe themselves in brief, clear language. Every lesson heard in school should be a training lesson in the use of pure language. The lesson in arithmetic should be arithmetic and language; the lesson in history should be history and language, and so with every other subject. The teacher should never neglect in any lesson what the pupil seeks to accomplish in studying another subject.

Only as long as one humbly learns can he hopefully teach. No one who is contented with his intellectual and moral condition can lead others to build high ideals. The inspiring teacher is ever a student. Man is not an exception to the universal law of nature which shows that *when perfection is reached decline begins*. The daily life of the teacher should be an inspiring example of high ideals and right conduct. The routine of school exercises is too mechanical, too superficial to fill the soul of the pupil with purpose or develop in him a desire to know more of nature, science, art, or himself.

TEST QUESTIONS ON THE CHAPTER.

1. Show that to perceive is to think.
2. Show that to reproduce percepts is to think.
3. Show that to construct ideal pictures is to think.
4. Define thinking and thought.
5. Distinguish between the meaning of the phrase individual notion and the phrase general notion.
6. Why is the general notion abstract?
7. In your own words define conception.
8. Distinguish between a percept and a concept.
9. Distinguish between perception and conception.
10. Prove that you know how concepts are formed by forming orally the concepts *cat, boy, horse, house*.
11. Distinguish between apprehension and comprehension.
12. Point out the distinction between an image and a notion.
13. Show why a concept cannot be a mental image; give three illustrations.
14. Show that conception is based on images.
15. How can obscure concepts be made clear? Illustrate.
16. Show that a percept represents more of reality than a concept. Give two illustrations.
17. Show that a concept is an incomplete form of knowledge.
18. Why does composing awaken a pupil to his highest state of self-activity?
19. Why is revision the only cure for verbose expression?
20. How is accuracy in the use of language acquired?
21. Why should the method of the teacher compel the pupil to be on the alert in all he says in the schoolroom?
22. Why cannot the contented teacher inspire pupils?
23. Why does decline begin when effort ceases?

CHAPTER VIII

JUDGMENT — REASONING

In the preceding chapter we learned that a concept involves the reference of the universal element contained in it to a particular, definite object. In the concept *horse*, the universal element, the general notion *horse*, has reference to every individual horse whose class marks are combined in the concept. A concept has ideal significance with reality. Judgment takes the concept and says something about it. It makes the concept definite. Having a concept we may apply it to some individual thing or class of things, as when we decide that this piece of stone is granite. In making these decisions we are *judging*.

Formal thinking includes conception, judging, and reasoning. Having formed judgments we may pass from these to other judgments, as when we say that air has weight because all material bodies have weight. In passing from given judgments to other judgments we *reason*. We may now define *judgment*, and *judging*. 1. “Judgment is the assertion of agreement or disagreement between two ideas.” 2. “Judging is the name of the mental act by which the mind com-

pares concepts." "Whenever we connect two representations with one another under the form of a statement we perform an act of judging." In perception we combine sensations to form ideas of individual objects. In conception we combine the points common to a class of objects to form general ideas. In judging we determine the relation between two representations. Judging is the typical act of intelligence. Thinking always takes the form of a judgment or of a series of judgments. Judgment finds its verbal expressions in a proposition; formal reasoning finds its verbal expression in three related propositions, called a syllogism. (Teacher will form three judgments.)

When we studied sensation, the raw material of knowledge, we found that knowledge takes its rise in the senses; that without a sensory basis an idea could not exist. When we studied perception we found that it is a combining process; that the mind works on the raw material and gains knowledge of individual objects in the outer world. When we studied apperception we found that the mind interprets new objects by using its accumulated stock of images. In every case we found that sensation is the basis, and apperception the interpreter. Apperception gives meaning to the new thought; it gives it existence. Judging is not a new act of mind; it is merely a conscious recognition of every act of mind. (Teacher will explain.)

A judgment consists of two ideas and a connecting term; as, the *fire* is *hot*. In this judgment the two ideas are *fire* and *hot*, the connecting term is *is*. The *horse* is an *animal*. In this judgment the two ideas are *horse* and *animal*; the connecting term is *is*. A single judgment is a simple sentence. In logic it is called a proposition. A proposition is the statement of a judgment in words. In every judgment there are three elements: the person or the thing we qualify (the subject of the proposition); the quality we attribute to it (the predicate of the proposition); the asserting element by which the mind declares that the quality does or does not belong to the subject (the verb). Example: "Iron is heavy." In this judgment *iron* is the thing qualified; *weight* is the quality attributed to it; *is* is the asserting term. A judgment may be expressed by joining two concepts: as, *dogs* are *animals*; by joining one concept and two concepts: as, an *orange* is *round* and *yellow*; by joining a percept and a concept: as, this *horse* is *strong*.

In every proposition there are three terms: the subject, the verb, and the predicate. The subject is the person or the thing about which something is asserted; the predicate is the thing or the quality that limits the subject; the verb is the word that asserts. In the proposition, "The apple is nutritious," the word *apple* is that about which something is asserted;

hence it is the subject; *nutritious* is the quality affirmed of the apple; hence it is the predicate; *is* is the asserting word, the word that joins the predicate to the subject; hence it is the copula. In attributive verbs the copula is incorporated in the verb. An attributive verb is a verb that asserts an attribute of its subject; as, the sun *shines*. In this sentence the attributive verb *shines* asserts the attribute *shining* of the subject, the *sun*.

Kinds of Judgments.—A judgment is a proposition expressed in words. A proposition may assert that a thing is or that it is not; hence judgments are separable into two classes, positive and negative judgments. In the proposition, “The weather is warm,” we have the two concepts, *weather* and *warm*. We compare them, find that they agree, and form with the connecting link *is* a positive judgment. In the proposition, “A horse is not a dog,” we have the two concepts *horse* and *dog*. We compare them, find they do not agree, and with the copula *is* form a negative judgment. If the concepts agree the proposition is a positive judgment; if the concepts do not agree the proposition is a negative judgment. As has been stated, a concept is a bundle of affirmative judgments. Conception, therefore, is the result of judging, and judging is a result of conception. Each presupposing and depending upon the other; the two

aspects of the thinking process are thus seen to be mutually dependent.

Judgment—Intuition.—Judgments are intuitions or inferences. An intuitive judgment is an original judgment perceived by the mind immediately; that is, without the intervention of any process of thought; as, “This stone is lustrous.” “Lightning flashes.” “All objects occupy space.” Attempts at proof only confuse. In intuitive judgments the matter is given already determined. An inference, being the conclusion of the mind, determines its matter; as, “Heat softens all metals;” “Iron is a metal; hence heat softens iron.” The judgment “Heat softens iron” is an inference or what is sometimes called a logical judgment. That is, it was derived from reasoning. Intuitive judgments are sometimes called psychological judgments. All primitive or psychological judgments are true. When one is conscious of the existence of a thing he feels absolutely certain of it.

Intuitive Knowledge.—1. “Intuitions are forms of knowing otherwise than by observation and reflection.” 2. Intuitions are beliefs and judgments which present themselves spontaneously to the mind with irresistible evidence, but without the assistance of memory or reflection. The immediate perception of truth without reasoning is intuitive knowledge.

Many of our judgments are arrived at intuitively or immediately, apart from any process of reasoning. Under the head of intuitive knowledge are classified such statements as the following: "The whole is greater than any of its parts." "A straight line cannot enclose space." "Every event has its cause." "Time is continuous." "One cannot be in two places at the same time." "Space has no limit." Such judgments are self-evident truths.

Judgments are *analytic* or *synthetic*. An analytic judgment is the expression of a judgment previously formed. The teacher's judgment is usually analytic; he generally expresses opinions deliberately, and those previously formed. A synthetic judgment is a judgment used for the first time. The pupil's judgment is mainly synthetic. From the foregoing it is clear that synthetic judgments add to our knowledge, and that analytic judgments make our knowledge clearer. (The teacher will give two judgments, one of each kind. The class will give one of each kind.)

Judgment—Belief.—1. "Belief is probable knowledge, rational conviction." 2. "Belief is the soul's assent to a proposition without positive knowledge." To believe a proposition is to regard it as true. Belief is not a separate state of mind differing from judgment, but is a necessary accompaniment of judgment. Belief, doubt, and unbelief are expressed in

judgments. In judgment we represent the corresponding things as connected with or related to one another. When I say, "Iron can be softened by heat," I believe that iron possesses this property. That is, the judgment expressed in the proposition, "Iron can be softened by heat," is accompanied by the belief that iron can be softened in that way. Belief is an element in judgment, an indispensable element, because judging involves intelligence, and intelligence must believe in itself.

Judgment—Unbelief.—As *belief* has been defined to be "The soul's assent to a proposition without positive knowledge," *unbelief* must be defined as the soul's dissent to a proposition. Not all judgments are affirmative. We deny as well as affirm. We declare that things are not, as well as that they are. An act of judgment is a choice between two alternatives; as, either this boy is guilty or he is not guilty. Every judgment must be true or false; hence we are compelled to choose between an affirmation and a negation. When the evidence which points to a particular given relation is not harmonious with the entire body of known truth, the analytic mind assumes the attitude of disbelief. It must be noted that disbelief is only a particular act of mind; it cannot be universal. Universal disbelief would be disbelief in intelligence, and this is self-contradictory.

Judgment—Doubt.—1. “Doubt is a lack of certain knowledge, uncertainty, indecision.” 2. “Doubt is uncertain or unsettled opinion.” In the foregoing paragraphs it is assumed that the mind either accepts or rejects a statement; that it must decide between two alternatives. It is not so. We may waver between acceptance and rejection, and suspend judgment; that is, we may hesitate to accept either the one or other of two judgments. This is a state of doubt. Experience proves that not every judgment agrees with the conditions of universal intelligence; that is, experience proves that some judgments contradict others. The mind thus arrives at a state of doubt. Experience often reverses the judgments of early life. Growing experience usually questions. The enquiring mind wants evidence.

Sources of Belief.—Experience and observation prove that belief is not a chance condition; it is with the majority an inheritance; with only a small minority is it a conviction, the result of personal study and investigation. This statement is not a compliment to the methods of instruction in many schools, and in many of our higher institutions of learning. The inductive method, the method of investigation, and the only safe method of instruction, has no charms for the teacher who believes that arithmetic can be successfully taught through the use of rules, and that

the use of good English can be acquired by analyzing and diagramming sentences. The hope of more rational methods is found in the unquestionable statement that a majority of our schools are better than they were ten years ago.

Sully says: "Our beliefs, and along with these our doubts, are products, having their conditions. We cannot at will bring any two ideas together in the mind and entertain belief or doubt respecting the corresponding relations. We say that our belief has been generated or produced in a certain way, as by observation of facts, reasoning, tradition, etc." Experience is probably the most fruitful source of belief. From the voice of intelligence and courageous experience there is no appeal. Intelligent experience revises and enlarges belief. Intelligence requires examination, and the habit of examining every proposition submitted for belief is a good habit to form. Our faculties were given us for this purpose. "Prove all things; hold fast that which is good," should be written in capital letters above every blackboard in America. The habit of proving things should be acquired and firmly established during school life. Training for power is the pupil's need.

Belief is based on evidence, but the evidence may vary greatly in amount and quality. The evidence that induces belief in one may not induce it in an-

other. There are degrees of belief. In the sphere of probability belief must take the place of knowledge. In all the practical affairs of life belief is sufficient for action, and the wise man does not wait to know, but acts on his beliefs. In the sacred relations of husband and wife, parent and child, lender and borrower, buyer and seller, teacher and pupil, belief must satisfy. These relations are sacred for the reason that demonstration is impossible. Here enters the principle of honor, which consists in a recognition of the sacredness of these personal relations.

Belief is both intellectual and emotional. It is part inference from the known to the unknown. Strong probability is ground for belief in religious as well as in business affairs. Absolute proof that man will live after his life ends here is impossible. We believe in the immortality of the soul, because it is much more probable that it will survive the body than it is that it will die with the body. The farmer, the stock broker, the promoter, act upon belief because they cannot know. The farmer cannot know that he will reap because he sowed; the broker cannot know that his investment in stock will pay a dividend; the promoter cannot know that his scheme or plans will be successful. In general terms the strength of belief varies with the associative forces which environ the believer. Mere belief is often an inheritance.

Truth.—Having briefly defined and discussed *belief*, *unbelief*, and *doubt*, we now ask *what is truth?*

1. “Truth is a *fact* as the object of correct belief.”
2. “Truth is the name of an abstract quality belonging to judgment.” What is a fact? “A fact is anything that is done or comes to pass; an act or deed; an effect produced or result achieved; anything regarded as actual existence; whether it be an object, event, condition or relation, and whether material or immaterial.” A clear idea of the definition of a fact is necessary to a full recognition of the definition of a truth. Nothing but a proposition can embody truth. Things, states, and qualities can be apprehended as real, but we cannot say that a *house* is true or a *sensation* is true or a *color* is true. Truth is the correspondence of consciousness with reality. (The teacher will mention two facts. The class will distinguish between a fact and a truth.)

A judgment may or may not be true. It is true only when the affirmation or denial which it asserts is in accord with the fact. When we assert an agreement or disagreement, and the agreement or disagreement does actually exist, our judgment is true and what we assert is true. Two realities must be apprehended before a judgment can be formed. Truth can be attained and error discovered only through acts of judging. All primitive judgments are true; it is im-

possible to err in a fact of consciousness. Intuitions are facts, and necessary facts, for without them we would not have anything to build upon. The special function of thought is search for truth.

The opposite of truth is error, a false judgment, a judgment usually due to hasty and superficial induction. "Error is a disagreement of cognition with its object." Feeling is a fruitful source of error. Things appear to be true or false as they please or displease. Custom and habit are also sources of erroneous judgments. Prejudice, which is usually petrified ignorance, is the most fruitful source of error. Notwithstanding there is in all men a natural, a necessary, a devotional love of truth, they often fail to attain it, because "it hideth, and the labor of discovery is great." (Teacher will define prejudice.)

Training the Judgment.—The school subjects which are especially serviceable in training the judgment in early school-life are writing, drawing, and sentence-making. In writing the pupil must compare his effort with the copy, note wherein his work differs from the copy; he must compare, judge, and decide. In drawing the pupil must observe, imitate, judge, and decide. As the sentence is the outward visible sign of a judgment, sentence-making is a valuable exercise in training the judgment. In early school life the pupil should make statements and answer ques-

tions in concise, complete sentences. Recitation in the form of complete sentences leaves a clearer and deeper impression in the mind of the pupil than recitation in the form of words and phrases. It requires closer attention and carries with it greater interest and feeling. Training in expression should constitute a part of the teacher's work in every school exercise. The knowledge that a pupil acquires in school will be of comparatively little use to society if he be unable clearly and forcibly to express his ideas. Every one needs the ability to use his mother tongue correctly, concisely, and forcibly.

In later common school-life, arithmetic, if properly taught, is admirably adapted to train the judgment. The value of this subject over other common school subjects in training the judgment depends on the method of the teacher in presenting it. If the teacher is of the rule and answer kind the subject does not offer any advantage for mental training over other subjects. What a pupil does in arithmetic he should do consciously, not mechanically. Memory or rule arithmetic usually fails when needed. Principles should be inductively developed in the class, and then consciously applied by the pupils to the solution of the text-book problems. Pupils should be trained to see that the first step in the solution of a problem in arithmetic is to determine what is required, and that

the second thing is to state the different steps in their logical order in correct, concise language. No other subject offers a better opportunity to train pupils in the use of concise and clean English than arithmetic. Every clean, concise statement of the steps in the solution of a problem in arithmetic is worth several lessons in technical grammar. Require a pupil to try again and again and again until he succeeds in making clean, concise statements.

Within the next few years the number of pages in the common school arithmetic will be reduced one-half; rules and answers will not disfigure the books, and the subject will be found only once on the daily programme of recitations. Arithmetic is a very important school subject. It has both a practical and a disciplinary value. Who will question the practical value of a knowledge of the study when it is properly taught? Arithmetic correctly taught is the very essence of intellectual training. It should teach pupils accuracy of statement and conciseness of expression. The study of arithmetic should train pupils to think correctly and courageously.

Every mental process involves judging. The mental faculties are not separate entities. They are separable only by abstraction. The mind's powers may be studied separately, but they cannot act separately. Judging is involved in perception and conception. In

perception we compare the thing under examination with other things and come to a decision regarding the things we are examining. In conception we compare, generalize, and denominate; each of these seemingly separate acts is an exercise in judging. Every act of recognition is judging. In acts of constructive imagination the fitness of means to ends is constantly asserted. Teacher, strive to train the judgments of your pupils. Memory recitations are often only memory recitals—only the parrot-like quotations of the language of the text-book.

To train the pupil's power of judging is to exercise him in forming judgments. Exercise is the only means of gaining power—physical, intellectual, or moral. The law of development is a uniform law. Require the pupil to describe objects, to relate something that has happened to him; to repeat what he has heard on his way to school. Submit propositions for his acceptance or rejection. The last suggestion requires the pupil to judge promptly; it also furnishes the teacher an excellent opportunity to observe the pupil's habit of thinking. Each of the suggestions should be made a means of training the pupil in conciseness and accuracy of statement. Accuracy in reasoning depends on a clear comprehension of the principles involved; accuracy of statement depends on the constant alertness of the pupil and the constant

surveillance of the teacher. Verbose statements should be revised by the pupil until they are concise; incorrect statements should be revised by the pupil, not by the teacher, until they are grammatically correct; exaggerations should be corrected by the pupil, not by the teacher.

Incorrect judging is usually due to indistinct ideas; that is, to indistinct percepts, images, and concepts. With an abundance of well-developed percepts and concepts, judgments are usually correct. Jumping at conclusions is one, only one, of the distinguishing characteristics of the teacher who believes that *stuffing* is culture. If the pupil's judgment is incorrect, it is due to the paucity and falsity of his ideas. Pupils are too often compelled to form hasty judgments; they are not allowed sufficient time for deliberation and comparison. As judging enters into every department of mental life the pupil should be trained to judge for himself. No method of teaching is sound which does not train the judgment. Compayré says: "Judgment, in its psychological acceptation, is the essential act of thought—the life, so to speak—of the mind. It is in the judgment that ideas are united and made alive; it is in the proposition, the verbal expression of the judgment, that words, the signs of ideas, are brought together and take bodily form."

REASONING.

1. "Reasoning is perceiving relations among judgments." 2. "Reasoning is a process of inference or arrangement of ideas according to the laws of thought." Reasoning is sometimes called the third or final step in thinking. Reasoning, like judging, is a distinct operation of the mind irreducible to any other. Elaborative knowledge is worked out by three processes: each of the processes is called an *aspect* in thinking. The *first* aspect in thinking is *conception*. The *second* aspect in thinking is *judging*. The *third* aspect in thinking is *reasoning*.

From the foregoing facts it is seen that mental growth consists of a series of comparing and combining processes, each process being logically dependent on the one preceding. That is, mental development depends on a proper use of the materials furnished by the senses, and held in store by perception and memory. From the raw material of knowledge, sensation, to the finished product, thought, mental life is continued, developed, and strengthened by combining, comparing, and assimilating ideas. All thinking implies comparing one object with another.

Nature of Reasoning.—"To reason is to pass from a certain judgment or certain judgments to a new one." That is, the mind compares judgments

and accepts or rejects the conclusion on the ground of the premises. The conclusion is due to the recognition of the relation between the new and the old judgments. The premises necessitate the conclusion. An example will illustrate what we mean: as, the barometer is falling; therefore it is going to rain. The conclusion is a logical one *because* it refers to past experience, because of its *relation* to observed facts; facts known to the observer.

From the illustration it is seen that reasoning is a higher and more complex form of thinking than conception and judging. It differs from perception, which is the recognition of a single object, and from conception, which is the assimilation of the marks common to many objects, from judgment, which is a comparison of concepts, in the simple fact that it is the identification of relations among things. All meaning is through relation to something else. Any cognition is because of some other cognition; hence relation is the very essence of meaning. This universal fact should be recognized by the teacher in every recitation; its practical recognition would tend to substitute interest for monotony in the classroom.

Inference—Proof.—To reason is to pass from proposition to proposition with definite consciousness of the logical relations involved. It presupposes a conception of the logical relation in such words as

"therefore," "because," and "hence," and a perception of their application in particular cases. To jump to conclusions is not to reason; we reason only when we say this is so or it is not so *because* of its relation to some other past experience or observation. One may jump to a conclusion or profit by a previous sense-experience without any conception or perception of the logical relation, as such. Relation is always a recognized factor in reasoning. Reason is "the faculty by which we perceive and conceive the words, *therefore* and *hence*."

Implicit Reasoning.—In reasoning we assume that the mind consciously passes from premise to conclusion, but in a majority of cases it does not do so. Ordinarily the relation is recognized through a particular case. We say this is snow *because* it is like the snow we saw last winter. That is, this experience is like a past experience. The child says: "This wood will burn," *because* he has seen other wood that burned. A boy, having observed on one or more occasions that particular pieces of wood float in water, will conclude directly in a new instance that this piece of wood will float. This is implicit reasoning, *because* the general ground or principle is implied and not explicitly set before the mind. In this way of reaching conclusions there is no conscious reference to past instances. It is not necessary to state

the general proposition on which the conclusion is based. Most reasoning is implicit reasoning, and can always be made explicit. Every perception, every remembrance, is a case of implicit reasoning.

Explicit Reasoning.—Reflection on the reasoning processes shows that in a very large majority of instances we implicitly assume a general statement. The boy in the example tacitly assumed that all wood floats. If he did not so believe he could not say: “This piece of wood will float.” When he is asked to state the ground for his calculation or to prove it he at once makes the general statement: “All wood floats.” That is, he changes the implicit form of statement to the explicit form. This is explicit reasoning or what is meant by the term *reasoning* generally. Thus it is seen that explicit reasoning differs from implicit reasoning in only one particular. It discovers the universal element, the relation of identity which is always at work in implicit reasoning; it does not jump at a conclusion. Reasoning always connects the universal element with the particular: as, John Jones is mortal *because* all men are mortal.

INDUCTIVE REASONING.

“Induction is an inference establishing a general proposition based on the evidence of particular cases.” Reasoning by induction is passing from the

particular to the general, or from a part to the whole. We must examine a sufficient number of individual cases to establish or infer a fact before we conclude that the rest of the cases will come under the same general law. We must be assured by exact observation and skillful experiment that we do not confound the accidental coincidence of two phenomena with their constant relation. The general statement may be true or false, which, depends on the number of individual cases observed and the character of the observation. It is clear that the value of the general statement depends on the quality of the thinking in the several individual cases observed.

Illustrations.—Multiplying the numerator of the fraction $\frac{2}{3}$ by 6 we get $\frac{12}{3}$, a fraction whose value is 6 times $\frac{2}{3}$. Multiplying the numerator of the fraction $\frac{3}{4}$ by 3 we get $\frac{9}{4}$, a fraction whose value is 3 times $\frac{3}{4}$. By treating many other fractions in the same manner we find that multiplying the numerator of a fraction invariably multiplies the fraction. Thus, by induction we find a rule in arithmetic.

By weighing a piece of cork and a piece of lead of the same size I find that the lead is the heavier. I weigh another piece of cork and another piece of lead, each piece being larger or smaller than in the first experiment, and find that the lead is heavier in each case. I repeat the experiment again and again,

and observe that in each case the piece of lead is heavier than the piece of cork of the same size. With these same uniform results before me I can safely affirm that lead is heavier than cork. Thus, by induction we find a general truth.

Again, the child observes that his knife, top, marble, and all else that he handles will fall to the ground when not supported. He gradually comes to the conclusion that all material bodies fall to the ground when not supported. The mental operation which warrants him to infer that all material bodies when not supported will fall to the ground, is a process of reasoning or inference, because in making the general statement he passes beyond the limits of his own observation. The word *all* includes not only the instances he has examined, but all unobserved cases. Thus, by induction we discover a law of physics.

The judgment, "All men are mortal," was found by inductive reasoning. As one generation has followed another to the grave from all time past, we may logically infer that in the future generation after generation will follow one another to the grave, and that, since nature is uniform in its operations, "All men are mortal."

Again, the judgment, "All crows are black," is the result of inductive reasoning. Every crow that I ever saw was black, and every crow that has been

seen by others was black. Assuming that the crows I have seen and which others have seen are types of the entire class of crows, we may safely infer and affirm that all crows are black. The general proposition, "All crows are black," reached by induction, is wider than any personal experience because no one has seen *all* the crows.

Imperfect induction is the careless noticing of a characteristic in a scanty number of a class and jumping to the conclusion that such characteristic is common to the entire class. One should not declare a man a fool because he had committed one or two imprudent actions, nor assert that all men are dishonest because John Jones and William Smith have been dishonest, nor that all school teachers are incompetent because Henry Smith and Mary Williams were schoolroom failures. Hasty induction is the source of many false statements and much bad blood. At best our inductions must in a large measure be imperfect. For want of time to observe critically every case to which the general statement is applied we assume that it is true, and believe, and act.

DEDUCTIVE REASONING.

Deduction is the process of following out a general proposition into its particular applications. Reasoning by deduction is passing from the general to the

particular, from the whole to a part, from the greater to the less. Deductive reasoning begins where inductive reasoning ends. It takes as its basis proposition a general truth which was discovered and established by inductive reasoning.

The methodical arrangement of the propositions in deductive reasoning is called a syllogism. "*A Syllogism* is an act of thought by which from two given propositions we proceed to find a third proposition, the truth of which necessarily follows the truth of the given propositions." The first proposition, containing the wider class, is called the major premise; the second proposition, containing the narrower class, is called the minor premise; the third proposition, affirming that the narrower class is contained in the wider class, is called the conclusion. In the following syllogism the first judgment is the major premise, the second, the minor premise, the third, the conclusion:

Heat expands all metals. (Major Premise.)

Iron is a metal. (Minor Premise.)

Therefore heat expands iron. (Conclusion.)

Again, All fruit is perishable. The orange is a fruit. As *all* fruit is perishable, the orange being classed under the concept *fruit*, is perishable. From the two judgments, "All fruit is perishable" and "The orange is a fruit," we form the third judg-

ment, "The orange is perishable." No other judgment or conclusion is possible, because the judgment, "All fruit is perishable," includes the fruit *orange*. Arranging these three judgments in the form of a syllogism, we have:

All fruit is perishable.

The orange is a fruit.

Therefore the orange is perishable.

It is clear that if I cannot assert that *all* fruit is perishable I can infer nothing. In ordinary discourse the major premise, being understood by both the speaker and the hearer, is usually suppressed; as, "She will talk, being a woman." The major premise, "All women will talk," is suppressed. The regular syllogism is used but little in deductive reasoning.

The syllogism is used in formal, deductive reasoning. The validity of the conclusion, the third judgment, depends wholly on the character of the major premise or general proposition. Every conclusive judgment is derived from a sound, general statement. Fallacies arise from false assumptions, and from false or imperfect inductions. The following syllogism illustrates this fact:

All school teachers are good men.

Adam Smith is a school teacher.

Therefore Adam Smith is a good man.

This is not a sound conclusion, because we cannot assert that all teachers are good men. Induction does not warrant the statement. If all teachers are good men Adam Smith is a good man, because he is a teacher. Whatever is true of a class is true of every individual of the class, otherwise we could not reason from general to particular truths.

The validity of a conclusion reached through a syllogism depends wholly upon the major premise. If the general statement is true the conclusion is valid; if the general statement is a mere assumption, or the product of hasty judgments, the conclusions may not be true. From these statements it is clear that we must turn to induction to test the truth of general propositions. Truth can never be attained and error eliminated except by acts of judgment.

INDUCTIVE AND DEDUCTIVE REASONING COMPARED.

As has been stated, inductive reasoning passes from individual facts to general facts, from cases observed to general statements. Deductive reasoning passes from general statements to particular cases. Inductive reasoning is an upward movement of thought from particular truths to general truths; deductive reasoning is a downward movement of thought from general truths to particular truths. "Each kind of reasoning leads to the other kind,

Induction never stops with itself, but immediately leads to deduction. Induction and deduction are *aspects* of the same act; each occurs *through* the other, and depends upon the other."

Inductive reasoning leads to new knowledge; it questions, experiments, and decides. It begins with individual facts, puts percepts before concepts, and judgments before conclusions. It is the safe method of arriving at a conclusion; it trains the pupil to question, to think, to prove. It is the proper method of instruction, for it trains the pupil to rely on himself. Deductive reasoning reverses the natural order of acquiring knowledge. It begins with general notions, puts judgments before concepts, concepts before percepts, theories before facts.

Inductive reasoning is the slow process of acquiring knowledge; it leads to general conclusions by the observation of many individual cases. It leads the pupil, step by step, to grasp the truth that leads to a general statement. Through repeated perceptions of the same truth, physical, intellectual, and moral, the pupil becomes immovably convinced. He is lead to feel that the general statement is true. Deductive reasoning is the quick method of acquiring knowledge; it assumes that the conclusion is true. It is the method of the teachers who find it more convenient to believe than to investigate.

Defective Reasoning.—Locke sums up his views of defective reasoning as follows: “1. A disposition to accept common beliefs and statements without reasoning about them. 2. Permitting passion or prejudice to bias our views, instead of examining evidence judicially. 3. Failure to examine all the conditions that may affect the result.” The school should train the pupil to think for himself on all matters that claim his attention. The pupil should be trained to investigate for himself. No one has a monopoly of truth or the right to deny others the privilege of investigation. In too many American schools the memory is crowded, crammed with trifling detail, and the judgment neglected. The knowledge, if the heterogeneous stuff crammed into pupils can be called knowledge, is ill arranged and cannot be called up or used.

Discourage intellectual guessing on the part of the pupil. Guessing at answers is dishonest; it is a cloak to mental unreadiness and to conscious moral cowardice. The teacher that permits guessing has no way of distinguishing a pupil’s replies which are the guesses of the moment from those which are the results of honest work. In many schools guessing is a substitute for honest struggle. The habit of guessing grows with pupils who are required to do things without being required to give reasons for doing

them. At best guessing at results is a bluff and a shallow excuse. Teaching which does not train pupils to be honest, courageous, and independent is indifferent teaching.

The mental process of thinking or joining concepts is called a thought. A thought is a conclusion of the mind in which concepts are connected — one as the subject of the proposition, the other as the predicate. Thought is the power which compares things and detects resemblances and differences. All thinking implies comparing one object with another. We think to relate things and by relating them we comprehend them. Relation is the essence of meaning. While the pupil should be allowed time to think, he should be trained to think quickly, to decide promptly. Many teachers accept the pupil's quotations of the text-book as conclusive evidence of his knowledge of the principle involved. A question by the teacher will often show that the pupil had only crammed himself with the language of the text-book.

The readiest pupil to answer questions and to get answers under the direction of rules is not always the clearest thinker. Many pupils recite correctly and flippantly what they do not understand. Only what he clearly understands is assimilated with knowledge already acquired. Only what he really knows and can apply is useful in acquiring new knowledge. It

is the teacher's duty to know that the pupil understands what he quotes or recites. The mere recitation of the thoughts of others is a poor substitute for personal thinking and conviction.

Thought—Language.—The correct use of language is indispensable to progress in thinking. Throughout school life the pupil should be required to express his judgments in his own words. Throughout life nothing is more important than the acquisition of a large vocabulary of words whose meanings are clear and well-defined. The teacher should require the pupil to recite in his own language. The pupil would in this way acquire the correct use and meaning of words. Too often the talking teacher furnishes the judgment, and often the teaching ends with the enunciation of the judgment by the teacher. The pupil is a passive listener and usually a passive believer. Teaching is the art of training the pupil to think. Fifty years ago the teacher did little for the pupil; to-day he does nearly everything. Teaching that does not train a pupil to judge for himself, to rely on himself, to question the unreasonable or absurd, is worthless teaching, cowardly teaching.

The educational value of elementary logic, like that of *thought* analysis of sentences (I do not mean analysis by diagrams), consists in the discipline it affords. It can be employed in the schoolroom as an

exercise in converting assertions made in verbal and written recitation into propositions in logical form, and then arranging the conclusions reached by inference in syllogistic figures. The exercise is more than a study of the case in hand. It is a study of universal law. It shows that the value of a syllogism, and the inductive process by which the major premise is reached, rest upon the assumption of the uniformity of nature, an assumption which universalizes the generalizations of experience. It is self-evident that, if the operations of nature are not uniform we could not logically infer anything. The training of pupils in this simple way would do much toward the acquisition of a habit that would eventually make enquirers rather than mere believers.

The method of instruction in too many schools encourages pupils to accept the statements of textbooks. It is not criminal to question the probability of text-book matter. The love of truth and accuracy can be developed only in one way — by questioning, by investigation, by personal thinking. Teaching that does not train the child to think for itself is cramming. The teacher that cannot think or dares not think, cannot lead pupils to think. Accurate scholarship and manly independence leave impressions on pupils, but ignorance and dependence are obstacles in the way of intellectual and moral growth.

A teacher should know the subject rather than its treatment by a special author. Slavery to text-books suggests incompetency and creates distrust in the minds of pupils. Teachers are more courageous and inspiring without a text-book in hand than with one.

The school should prepare the pupil for the work of life. The school is only a means to an end. The end sought in the study of grammar is not grammatical facts, but the correct and ready use of words. All need language; few need technical grammar. The end sought in the study of arithmetic is not answers, but mental discipline in rigid and exact reasoning. Very little text-book arithmetic answers all the needs of ninety-nine in one hundred. The end sought in the study of geography is not a memory crammed with geographical facts, but an imagination filled with living pictures of the earth's surface. The end sought in the study of history is not a memory crammed with the dates of wars, and battles, and the biography of small men, but a feeling knowledge of the lives, characters, and ideals of the man who made the history. As this subject is usually taught it does not train the judgment or encourage the pupil to "Hitch his wagon to a star." The first duty of the teacher is to distinguish clearly between training and cramming. The primary object of the school is training pupils for power. Culture is the product of get-

ting learning in accordance with the laws of mental development. The mental habits acquired by the child in early life bless or blight his whole life.

We conclude this chapter with a brief review of the three *aspects* of the thinking process. As before stated, the three aspects, conception, judgment, and reasoning, are not different stages of the thinking process, but different aspects of the same process. Conception is the simplest of the three aspects of thinking; it combines into general notions the points common to each of a class of objects. Judgment, or more properly *judging*, the second aspect of the thinking process, is more complex than conception. Judging compares and combines general notions, using one as the subject, the other as a predicate of a proposition. Judging asserts that this thing is or that it is not. Reasoning, or the third and final aspect of the thinking process, is the highest form of intellectual operations. It tests the validity of judgments. Reasoning, like the two other aspects of thinking, is a comparing and combining process. It compares two judgments and finds a third judgment as a conclusion of the comparison. It is well to note that all thinking involves comparison, discrimination, and combination, and that it is based on the result of sense-perceptions revived by memory.

TEST QUESTIONS ON THE CHAPTER.

1. Define and illustrate the term judging and judgment.
2. Form a judgment by using a percept and a concept; by using two concepts; by using a percept and two concepts.
3. What are the principal sources of inaccurate judgments?
4. What is intuitive knowledge? Illustrate.
5. Distinguish between analytic and synthetic judgments.
6. Name the school subjects most serviceable in training the judgment in early school life.
7. Should arithmetics contain rules and answers?
8. Show that judging is involved in conception.
9. Define reasoning and illustrate the definition.
10. Is conception the first step in thinking?
11. Why is judging called the second step in thinking?
12. Why is reasoning called the third step in thinking?
13. Define inductive reasoning and give an original illustration of the process.
14. Name the principal sources of imperfect induction.
15. Define deductive reasoning and give an original illustration of the process.
16. What is a syllogism? Form two original illustrations, one valid, the other invalid.
17. On what does the value of the third judgment in a syllogism depend? Illustrate.
18. Give three original illustrations of implicit reasoning.
19. Give three original illustrations of explicit reasoning.
20. What do you mean when you say "I believe?"
21. What do you mean when you say "I do not believe?"
22. Distinguish between doubt and belief.

CHAPTER IX

FEELING—WILL

Feeling is divided into two great classes, known as *Sensations* and *Emotions*. Feeling as *Sensation* is the increase (or decrease) of mind activity produced by organic disturbance of the body, whether external or internal. Feeling as *Emotion* arises within the body, and is the product of all concepts present to consciousness at the time. Before we attempt a brief discussion of *feeling* as emotion let us clearly emphasize the difference between the two great classes of feeling by presenting simple illustrations of each class. I cut my finger with a knife: I have *feeling*, physical pain, sensation. A friend has lied about me: I have *feeling*, a feeling of anger, emotion. The first feeling was caused by external stimulation, hence it was a physical feeling; the second was caused by mental agitation, hence it was a psychical feeling.

Again, I feel the pain caused by an aching tooth: physical feeling, sensation. I feel pain caused by the death of my friend: psychical feeling, emotion. The origin of the first feeling was in the body; the origin of the second feeling was in the mind. I feel pain

from a burn: sensation. I feel sorrow for a wrong I committed: emotion. The first feeling must be referred to the body; it was caused by the stimulation of a sense-organ, hence it was sensation. The second feeling was in no way caused by any physical disturbance; it arose wholly in the mind, hence it was an emotion. Thus it is clear that there are two great classes of feelings — sensations and emotions; the former class being caused wholly by the stimulation of a sense-organ; the latter class being caused wholly by mental agitation. Feeling as sensation is a simple state of mind; feeling as emotion is a complex state of mind. Feeling may be defined as follows: 1. "By feeling is meant any state of consciousness which is pleasurable or painful." 2. "Feeling is any state of mind which cannot be regarded as knowing or willing." (Teacher will illustrate.)

The feelings constitute a distinct and well-marked phase of mind. "Pleasure and pain make up the interesting side of our experiences." In fact experience derives its value from its relation to feeling. If action had no power to affect our feelings there would be no reason for action. Inaction would be our choice. Feeling, therefore, is a subject of great importance. It is of importance, not only in itself, but in relation to the two other distinct phases of the mind — knowing and willing.

Emotion.—There are many kinds of emotions, and some of them are very complex. We shall briefly discuss only the most important emotions, namely: Egoistic Emotions; Altruistic Emotions; Intellectual Emotions; *Æsthetic* Emotions; Ethical Emotions.

Egoistic Emotions.—Egoistic feelings cluster around the *self*. Egoistic feelings spring from the instinct of self-preservation. They are concerned with the pleasures and pains, the wants and desires of the individual. In a large measure egoistic emotions are selfish. Chief among this class of feelings are pride, jealousy, love of approbation, fear, and anger when anything threatens the self. Any feeling which arises from a desire for self-advancement or to escape from personal harm is egoistic in its character. (Teacher will illustrate.)

The egoistic emotions need little or no cultivation. Egoistic emotion is pleasurable in view of personal gain or advantage; painful in view of personal loss. This personal emotion is the mainspring of action for self-interest. “Take care of thyself, for no one will take care of thee.” It is said that Heaven helps only him who tries to help himself. Every one should have enough egoistic emotion to accumulate sufficient money to feed, clothe, and shelter himself and those dependent on him, and to keep him from being an inmate of a charitable institution in his old age.

Egoistic emotion does not necessarily mean selfishness. Selfish men seldom succeed in acquiring fortune or character.

Altruistic Emotions.—Altruistic emotions are unselfish and are directed toward others. Principal among the altruistic emotions is *sympathy* for others. Sympathy is the capacity to understand and enter into the feelings of others. It is the noblest of all the feelings. “Its possession renders a human being more attractive than all other qualities combined.” Sympathy, genuine sympathy, means action for the benefit of others even at the expense of pain and money. It means more than lip-service. Sympathy implies the power to remember our own feelings, the power to put one’s self in the place of the one with whom we sympathize. Feeling can be interpreted only in the terms of one’s own experience. If one has never felt a given feeling, a volume of good Anglo-Saxon would not help him to understand it.

Sympathy is mutual in its nature. One who expects sympathy must himself be sympathetic. A sympathetic feeling is the natural basis of the relationship between teacher and pupil. Very young children detect the character of the teacher’s feelings toward them and act in accordance with the judgment which forces itself upon them. Very young children distinguish between real and assumed sympathy.

The teacher's face defines the quality of the feeling exercised. The giving of sympathy is sometimes a pleasurable emotion; sometimes a painful emotion. "To enter into another's joys is a pleasure; to sorrow with the sorrowful is to share in a painful state of mind."

Sympathy, the foundation of all the altruistic feelings, means more than sentimental expressions of good will. One becomes sympathetic through a sympathetic service for others. But the giver of sympathy is a receiver also. Every genuine feeling of sympathy for the misfortunes of another reacts to the happiness of the sympathizer. That is, helping others helps ourselves. Experience declares that giving affords more pleasure than receiving.

"That man may last, but never lives,
Who much receives, but nothing gives;
Whom none can love, whom none can thank,
Creation's blot, creation's blank."—GIBBONS.

"Yet should some neighbor feel a pain
Just in the parts where I complain,
How many a message would he send!
What hearty prayers that I might mend!
Enquire what regimen I kept,
What gave me ease and how I slept."—SWIFT.

Altruism is not a dead emotion, a thing of the past. History clearly shows that civilization is progressing Godward. Statistics show an annual increase in the

number of charitable institutions. Orphan asylums, homes for the aged, societies for the protection of children are now seen everywhere. Larger amounts are now given to endow colleges and universities, to build and support free public libraries and free public schools, than ever before. There are more people now engaged in trying to make the world better than ever before. The phrase, *brotherly love*, is beginning to mean something. Truly did Emerson, the greatest seer of the age, say, "Write it on your heart that every day is the best day in the year."

The teacher should always sustain a sympathetic feeling toward his pupils. Exhibitions of sympathy toward them do much to create a sympathetic disposition toward the teacher on their part. Sympathy begets sympathy. Like usually begets like. Sympathy is the basis of the influence which has the well-being of others as its object. The sympathy of others strengthens one's faith in himself and encourages endeavor. There is no conflict of opposition between sympathy for the pupil and the most rigid discipline; the most exacting methods of instruction and the usual regulations of a good school. Sympathy for a pupil often demands a firm hand and a determined purpose on the part of the teacher. Love is the power that inspires and saves, the source of light and life. Love brings more light and life and happy-

ness to the human race than all the other agencies combined. Truly has the poet said:

“The night has a thousand eyes,
And the day but one;
Yet the light of the whole world dies
With the setting sun.

The mind has a thousand eyes,
And the heart but one;
But the light of a whole life dies
When love is done.”

Intellectual Emotions.—Intellectual emotions enter the region of the abstract. Intellectual actions develop intellectual emotions. Every exercise of the mind is accompanied by feeling, pleasurable or painful. Intellectual occupation is pleasurable if it is suitable to the strength of the faculty exercised. When thinking makes the obscure clear it is accompanied by a pleasurable emotion; when thinking reverses well-established beliefs and gives clearer and wider views it is accompanied by pleasurable emotions; when thinking invents a labor-saving machine or method it is accompanied by pleasurable emotions. Intellectual emotion always accompanies independent, courageous thinking. The masses seldom feel this emotion.

“The slaves of custom and established mode,
With pack-horse constancy, we keep the road,
Crooked or straight, through quags or thorny dells,
True to the jingling of our leader’s bells.”

Who can imagine the emotion which filled the soul of Newton when he discovered the law of gravitation, or the soul of Columbus when he first saw land on this side of the Atlantic, or the soul of Franklin when he discovered the identity of lightning and electricity, or the soul of Morse who first used electricity to carry our messages! A little thinking will show that intellectual emotion is the sequence of mental activity, that while a moderate degree of pleasurable feeling accompanies mental activity, the full measure is enjoyed only at the close of the labor. A desire to know more is the basis of intellectual activity. Curiosity is the basis of intellectual emotion.

The intellectual emotions accompany the study of the best literature, especially the study of poetry. Take notice of your emotions while you read and study the following from Wordsworth:

“I have seen
A curious child, who dwelt upon a tract
Of inland ground, applying to his ear
The convolutions of a smooth-lipped shell;
To which, in silence hushed, his very soul
Listened intensely — and his countenance soon
Brightened with joy; for murmurings from within
Were heard, sonorous cadences! whereby
To his belief the monitor expressed
Mysterious union with its native sea.
Even such a shell the universe itself
Is to the ear of faith.”

Æsthetic Emotions.—Æsthetic emotions arise from the perception of the beautiful or its opposite. “Æsthetic emotions are the accompaniments of impressions made on the mind by external objects through one of the two higher senses, sight and hearing, and more particularly sight.” The sight of beautiful objects and of ludicrous occurrences awaken this emotion. Witty sayings also give rise to æsthetic sentiment. Bain says: “These emotions have pleasure for their immediate end; they have no disagreeable accompaniments; their enjoyment is not restricted to one or a few persons.” These emotions serve for enjoyment and for refinement, and are in no sense selfish or useful otherwise than as stated. They are usually classified under three heads: *Emotions of Beauty*; *Emotions of Sublimity*; and *Emotions of the Ludicrous*.

Emotions of beauty are awakened only when something beautiful is presented through the eye or through the ear. The blue sky, the rainbow, a beautiful sunset, the Sistine Madonna, the Greek Slave, the song of a bird, the music from an orchestra, awaken æsthetic emotions of the beautiful. Emotions of sublimity are awakened by the sight of the mighty oceans, vast plains, lofty mountains, the starry heavens. Emotions of the ludicrous include those feelings which accompany and follow expressions of wit and humor.

A witty expression may please or it may wound—depending on the aim and manner in which it is expressed. A humorous expression always pleases, or at least pleasure is its aim. As the ludicrous could arise only from incongruous or inharmonious relations, it follows that incongruity is the basis of the ludicrous. (Teacher will illustrate.)

This brief account of the way in which æsthetic pleasures arise shows that they are distinguished from the other emotions by the following characteristics: 1. They are distinguished by their freedom from disagreeable accompaniments. 2. The mental activities of which these pleasures are the accompaniments are in no way selfish or personal. The emotion which arises while contemplating the beauties of nature or the beauty in art is the sole end of the experience. One person or the whole human race may be delighted without cost and without destroying the source of the pleasure.

Æsthetic pleasures were unknown in the early ages, and in a large measure are still unknown to the masses. The masses have little time to spend and little surplus energy to work off in enjoying the emotions which arise from contemplating the beauties of nature or the works of art. The masses are still wage-earners and must content themselves in providing the necessities of life. The beauty of the decla-

ration, "The heavens declare the glory of God, and the firmament showeth his handiwork," is seen and felt only by those who have culture and refinement. The public free school is the only hope that the majority will ever have the capacity which will privilege them to appreciate and appropriate the beautiful in nature, art, and literature.

Ethical Emotions.—Ethical or Moral emotions arise only on the perception of the right or the wrong in human conduct. An ethical emotion refers to moral conduct; it springs from man's relation to man and carries with it a feeling of duty, of obligation. It is concerned, not with what one might want to do, but with what he *ought* to do. "A moral emotion carries with it a feeling of *oughtness* possessed by no other emotion." "Thou shalt," or "thou shalt not," says you *ought* to do this or you *ought not* to do that. Every right action carries with it a feeling of approval; every wrong action carries with it a feeling of disapproval.

This feeling of approval or of disapproval applies, not only to what one does, but to what others do. You learn that a neighbor had restored the property which he had obtained fraudulently; you perceive that it was right in him to do so, and a feeling of approval arises. You learn through the daily press that an unscrupulous schemer has cheated a poor man; you

perceive that the action was wrong, and a feeling of disapproval immediately arises. You are tempted by an offer of personal gain to misrepresent the actual condition of the property you have for sale; you perceive the obligation to tell the truth, and the feeling of approval which always accompanies right conduct immediately arises to support you in your struggle to do right. The essential element of conscience is *obligation*. (Teacher will illustrate.)

Only those actions which affect the welfare of others give rise to moral emotions. The perception of the beautiful in nature and in art may give rise to aesthetic emotion, but never to moral emotion. Moral emotion depends for its validity on the universal fact that the action which gives rise to this feeling is always freely willed. The voice of conscience constantly says to every one "do right." Do right according to the light you have—to that limit you are held responsible by God and men.

Feeling—Knowing.—"The relation of feeling to knowing is one of mutual opposition and reciprocal aid." The mind cannot at the same time feel deeply and reason clearly. That is, while feeling holds the chief place in consciousness, the reasoning power is weakened. No one can think clearly while he is mourning the death of a friend, nor can one feel deeply while he is engaged in abstract thinking.

Thus feeling and knowing oppose one another. This mental truth the teacher should recognize in the treatment of his pupils. There are times when a pupil cannot study. The teacher should know the pupil's home and social environment, that he may always be sympathetic and just. The teacher should be able to interest the feelings of his pupils.

Emotion also aids knowing, for intellectual activity implies interest, and interest is impossible without feeling. Emotion stimulates the knowing phase of the mind; it tends to arouse memory; it gives clearness to images, and thought traces out its relations more easily while there is a gentle wave of pleasurable emotion present. Without feeling, the knowing phase of the mind is wholly indifferent, and no action is taken; hence willing depends on feeling. As the mind is an indivisible unit of energy, it follows that the activity of one phase of it involves in some degree the activity of the two other phases. The accepted definition of mind makes the foregoing statement self-evident. (See CHAPTER I.)

Feeling may be defined as a mode of self-consciousness, or subjective consciousness. It is the Ego or self that feels. Knowing may be defined as a mode of objective or cognitive consciousness. It is the Ego or self that knows. Feeling is subjective, passive; knowing is objective, active. These two states

or modes of consciousness are inseparable; they exist only in coexistence; they are psychological correlatives. Although they are inseparable they are not proportional. The loss of consciousness in one phase of the mind is gain or strength in another phase. Intense feeling obscures thinking because feeling dominates, because it concentrates consciousness; intense thinking dulls feeling, because it draws consciousness away from the feeling phase of the mind. We must all the while remember that consciousness is an indivisible unit.

A state of consciousness that is subjectively a feeling is objectively a cognition, a state of knowing. That is, the same Ego or self both feels and knows at the same time. A feeling is subjective in that consciousness is therein limited to the pleasure or pain experienced by the conscious subject—the Ego or self. A cognition is objective in that consciousness is therein related to something distinct from the conscious subject or self. The self as a receiver of impressions is subjective consciousness; that is, the self is acted upon; the self as a knower of objects is a state of objective consciousness; that is, the self acts.

Feeling—Habit.—An emotion often indulged becomes a habit. One may indulge a morose feeling until it becomes a permanent trait. If it is indulged the tendency of the mind to become morose will grow

stronger and stronger day by day until the feeling becomes a sort of second nature. The more frequently a feeling is indulged the sooner it will become a part of the self, a habit. An emotion which through indulgence has become a controlling habit can be removed only through repeated successful efforts to substitute its opposite. A habit of emotion, like physical and intellectual habits, can be destroyed only through the will, only by willing it to cease. The tendency to feel morose may be removed by making a successful effort to substitute a feeling of cheerfulness every time the feeling of moroseness appears in the margin of consciousness.

“ My very chains and I grew friends,
So much a long communion tends
To make us what we are; even I
Regained my freedom with a sigh.”

The repeated experience of feelings of the same kind tends to produce habits of feeling. By permitting the same feeling to recur it becomes a habit. One who has formed the habit of feeling hopeful finally acquires a hopeful disposition. One who frequently permits feelings of doubt to control his actions soon acquires the disposition to doubt, to question, to disbelieve. He soon becomes an agnostic. We know, too, that emotion has its characteristic mode of outward expression. When an emotion has become a habit its presence and influence are seen in

outward expression. The face reveals the dominant feelings of the soul, and thus it becomes an index of the inner life. The law of habit (See CHAPTER X.) applies to habit in all its forms, and is as simple as it is uniform and beautiful.

THE WILL.

To *will* is to desire something believed to be attainable through conscious effort. The desire to attain a certain end is valueless until an effort is made to attain it. Every one knows that he has the power to act whenever some motive for action is presented to his mind. This power is exerted to attain something desirable if it seems probable or even possible that the object or end can be attained. Will may be formally defined as follows: "The term *will* includes all active operations of the mind." By active operations are meant, not only external actions or movements, but also internal acts of mental concentration, together with certain preliminary stages of action as desiring a thing, reflecting or deliberating about an action, and resolving to do a thing.

Knowing — Feeling — Willing.— The relation that always exists between the three phases of mind in every deliberate action is best seen in a simple illustration. I saw in an art gallery a beautiful painting and experienced a feeling of delight while viewing it.

A desire to purchase it followed, and I bought it. In this simple transaction each phase of the mind played an important part, and the three phases acted as a unit. My knowledge of the painting gave rise to an emotion which caused me to will to buy it, and the willing was followed by the purchase of the painting. In this example knowing preceded feeling, feeling preceded willing, and willing preceded action. The motive to voluntary action, the end or thing desired, is the gratification of some feeling. It is feeling that ultimately supplies the stimulus or force to action, and knowing guides or illumines the action. It is self-evident that we cannot act for a purpose without knowing something about the relation between the action we are performing and the result at which we are aiming.

The three mental states are clearly marked-off one from another. There is always opposition between knowing, feeling, and willing. The mind cannot exhibit each kind of phenomenon in a marked degree at the same time. That is, the rise of one phase of the unit, consciousness, is at the expense of the two other phases. *Will* cannot be identified with knowledge or with feeling or with a union of them. It is the power of the soul to direct its own activity towards ends of its own choosing. (Teacher will fully illustrate the facts in this paragraph.)

Two Types of Action.—Actions are of two kinds, non-voluntary and voluntary. A non-voluntary action is an action in which will is not an element, one in which conscious decision and directive effort of the mind are wanting. Blinking when an object is suddenly brought near the eye is non-voluntary; that is, the action is performed without the direction of the will. Many non-voluntary actions are scarcely mental operations at all, because consciousness does not seem to enter into them. Warding-off a blow with the hand is voluntary, because the action is consciously directed to a special end.

Non-Voluntary Actions.—Non-voluntary actions appear first, and include *Impulsive*, *Reflex*, and *Instinctive* movements.

Impulsive Action.—Impulsive movements are aimless, purposeless. Grimaces, yawnings, and stretchings belong to this class of actions. If any purpose whatever is felt it is hazy and indefinite.

Reflex Action.—These movements differ from impulsive movements in the fact that they are caused by sensory stimulation. That is, reflex movements are responses to external stimuli. An inward current of excitation must reach the brain through the sensory nerves, and an outward current through the motor nerves makes the required response. If a bright light be suddenly brought to the eye the pupil of the

eye contracts; a loud noise makes a child jump; a cold dip makes him gasp; he closes his fingers on an object put in his hand. In these, as well as in all similar movements, there is no element of conscious desire present. The brain takes no conscious part in these reflex actions. The element of will is wanting.

Instinctive Action.—Like reflex actions instinctive movements are responses to stimuli. They make no demand on the brain, therefore the element of will is wanting. They are, however, accompanied by a vague form of desire. Sucking, cooing, and pouting are instinctive actions.

Voluntary Actions.—Voluntary actions embrace *Imitative*, and *Deliberate* actions, the higher forms of movement. A voluntary action is an action which is consciously directed to some end; that is, the action is *willed*. The end sought in voluntary action may be the attainment of that which would give pleasure or the avoidance of that which would give pain.

Imitative Actions.—Imitative actions are prompted by an impulse which is excited by the sight of the movement in others. In a limited sense such actions are voluntary, because in a passive sense they are willed. Adults, as well as children, are imitators. The teacher should bear in mind the fact that he stands as a model to his pupils; that his personal habits are closely scrutinized and may be imitated or

copied by his pupils. He should feel that example teaches and act accordingly.

Deliberate Action.—Deliberate action is the highest type of action. It involves desire, deliberation, choice, and volition. It is only in this highest form of action that a deliberating will chooses between alternative courses of action.

Illustrations.—A boy saw an apple on the branch of a tree just above his head. He stretched out his hand and plucked it. This was a voluntary act because it was willed. The boy desired the apple because he was led to believe from experience that it would give him pleasure to eat it. It is clear that *desire* caused him to act. Again, a young lady out walking suddenly felt heavy drops of rain and heard thunder. She ran into the nearest house. This was a voluntary act because it was willed. The lady desired to avoid a disagreeable experience. Again, Shall I stay at home to-night with my sick brother or go to the theater? After fully considering the question I decide to remain at home. Here deliberation chooses duty in preference to pleasure. Knowledge of my brother's sickness preceded the feeling which controlled the will.

Elements of Willing.—In every deliberate action there are four associated elements: Desire, Deliberation, Choice, and Volition.

Desire.—Desire may be defined as “An earnest wishing for something; longing; craving; yearning.” “Desire implies recognition of present non-satisfaction, remembrance of past satisfaction, and an anticipation of future satisfaction through a similar experience.” From this definition it is clear that desire is the elementary phenomenon that precedes action. It is also clear that the basis of desire is knowledge, for where there is no knowledge there can be no desire. That is, the conspicuous element in wishing, longing, craving, yearning, is experience. One must have had experience and be able to recall the experience before he can have a desire for a new and similar experience. Desires multiply with age, experience, and knowledge. Desire has respect to the future alone. One cannot desire what is past, for it has ceased to be; nor what is present, for it is already in hand. One desires what may or can be.

Desire as Motive.—Emotions are of two kinds—pleasurable and painful. One desires that which he knows or believes will give him pleasure; and desires to avoid that which he knows or believes will give him pain. That is, feeling as emotion is agreeable or disagreeable, desirable or undesirable. Thus it is seen that desire is the motive which leads to action. Motives are numerous and may oppose each other. The right motive to action should be deliberately

chosen until right conduct becomes habit. Desires arise spontaneously in consciousness when ideas associated with pleasure are presented. It is thus an involuntary accompaniment of mental activity. While desire is involuntary it is clearly under the control of the will. If desire could not be controlled by the will it would not bear any relation to moral action. But desire bears relation to conduct, and that relation is determined by the will. Desire, like physical action, comes under the principle of habit.

Deliberation.—Deliberation may be defined as “Slowness or care in deciding or acting.” To deliberate is to consider duly the proposition submitted or the act contemplated. Deliberate judgments and care in expressing opinions distinguish the trained from the untrained mind.

Choice.—Choice may be defined as “Meriting preference,” or “That power of the will by which one freely prefers and selects as an end of action some one good out of those presented to the mind.” Choice is one of the decisive elements which follow desire and deliberation.

Volition.—Volition may be defined as “The faculty of will by which the powers are directed to the attainment of a chosen end.” It is will-power that brings about results in this world. The highest type of intellect and the finest sensibility without the di-

rective action of the will count for nothing. Doing is the only true measure of purpose and character. Character is developed by action, not by passive beliefs. The ideal becomes approximately real only through effort. The school should train the pupil to believe and to know that mental power and personal worth depend on high ideals and effort, and that character, the highest result of training and discipline, is the product of right thinking and right action.

Will—Attention.—Every deliberate voluntary action involves attention. In order to realize the end desired the will must first decide to make an effort to realize it; hence the mind must be fixed on it. In fact, willing is a form of attending. Attention is the simplest and the most rudimentary form of willing. It determines choice when alternatives are presented. One immediate issue of effort is attention. Attention determines both mental and physical action.

We can control our desires, and, therefore, our actions by a voluntary withdrawal of attention from those ideas which excite improper or immoral desires, and by refusing to grant them the indulgences of attention when excited. That is, by an effort of the will we can give attention to a desire or refuse to entertain it, and thus choice is determined by attention. An illustration will make this general truth clear. A father gave his son one hundred dollars as a Christ-

mas present and said to him: "Son, this sum of money I give to you to spend as you choose." The son replied: "I would like to buy a number of books for my library. I need rest, and would enjoy a vacation trip. I will think about the two things and report my choice in a day or two." The only question the son was called on to decide was, which of these two things did he desire most. Of course the son could cause the desire for either object to become the controlling desire by centering his attention on it. It is clear that the action which received the greater amount of attention was his choice.

Willing determines what we shall know; it conditions and controls voluntary attention. One can concentrate his attention on this object or on that object. This he can do at will and by the power of will. Thus the will selects and determines what one shall think about, and in this way determines life's ideals and realities. The special function of the will is to control attention. Voluntary attention occurs when the *self* by an effort of the will is focused on a given object. Attention with effort is all that any voluntary act implies. *Will* is attention plus effort. The achievement of will is to focus attention on a difficult task and hold it firmly before the mind. Will and effort have marked the personality of every great man of the past, and will always distinguish the doer

from the mere believer and observer. The men who succeed are those who work with a will born of courage and positive, personal conviction, and whose energies are absolutely tireless.

It is *will* that makes the human personality, which really develops the Ego; it is through the will that we are finally ourselves. "Our authority over ourselves is maintained only by continual exercise of the will. The measure of this authority is also that of human dignity, because this authority is the man himself." It is in *decision* that the will resides. From these facts it follows that the best man is he who has mind, heart, and character. The third and most important quality in the make-up of a man is character, and a good character is impossible without a firm will—a will that can resist temptation, a will that governs itself, a will that pursues its aim with an inflexible tenacity, a will which will not allow itself to be changed by the suggestions of others or by solicitations of the passions.

Will—Habit.—Habit is acquired action and may for a time successfully resist the efforts of the will to correct it. It is through the directive power of the will that habit is formed, that habit in a sense becomes a second nature. It is through the will that tendency to physical action is formed, and this tendency may react upon the will in an effort to dislodge

an improper habit. This fact should impress the teacher with the importance of regularity and order in the work of the school. The principle of habit is involved in all the acts of will. A decision in favor of right action tends to make the next decision in a struggle between right and wrong easier and more satisfactory. Only when duty to others has become habit, when it has become the ruling motive of action, can it be said that a good character has been established. (Teacher will illustrate.)

One good habit acquired by persistent efforts of the will is worth a long ton of text-book facts. The first deliberate victory of the will in dislodging a bad habit is the first step toward the realization of the ideal self through effort. It is clearly the teacher's duty to assist the weak-willed pupil to develop will-power. The teacher can stimulate and encourage the weak-willed pupil by giving him indirect help, suggestive help—never direct help. Direct help is a gift. Effort develops, enlarges, and enriches. The teacher that tells hinders. Mere information is a very cheap thing.

Actions often repeated become progressively easier even when they do not lose their voluntary character. Eventually they become habitual and constitute an element in character, good or bad. It is the teacher's duty to warn the pupil against first steps in wrong di-

rections. It is the first act that becomes habit if many times repeated. It is the teacher's duty to see that the first wrong act is not repeated. The young soon lose their freedom and become slaves to bad habits if not constantly guarded by parents and teachers. The soul, endowed with freedom, may by voluntary acts put itself under bondage. Education means individual freedom or it means but little. Habitual acts, like habitual feelings, consolidate into character, good or bad.

Every perfect habit is formed and maintained by the will; hence habit-forming is training the will. Every perfect action, mental or physical, indicates a habit. It is the teacher's duty to insure care and accuracy in *first* movements, the principle of habit will complete the task. It is also the teacher's duty to supply suitable opportunities for the pupil to exercise the faculty that needs cultivation. Education and instruction should enable the pupil to control his impulses and thus his actions. Good habits formed in early life are the only bulwark against the temptations of later life. A good habit becomes second nature in time, and thus a safe and reliable friend.

The teacher that has the slightest idea of the value and force of habit is never blind to the physical attitude of the pupil during the recitation. The pupil should be trained to sit still, stand still, sit erect,

stand erect. He should not be permitted to hunt for buttons in the bottom of trousers' pockets, because every conscious physical act demands more or less attention. He should be trained to govern the tone and volume of his voice and to speak deliberately and distinctly. He should be trained in good manners first, then in the correct use of his mother tongue. After these two essentials are well established there will be ample time for the work on the traditional programme. The control of physical action leaves in consciousness a distinct idea of the end to be reached; the movement or action becomes localized; and to the extent that the act becomes definite, less and less stimulus is required to set up the motion. In this respect physical action is governed by the law of habit. Train a boy until he is polite unconsciously. He who grows up without acquiring the habit of politeness is handicapped for life.

Dr. Schaffer says: "Fortunately, the law of habit here comes into play to lighten the conscious effort of the will. When the intellect, through the guidance of a conscious will, has acted according to the forms of thought in which the logician can find no fallacies, it tends to act again in that way, and next time a less expenditure of conscious effort is required. The thinking of the teacher, if correct and logical, tends to beget correct and logical habits of thought

on the part of the pupil. It is a piece of good fortune to fall under the dominating influence of a towering intellect."

Habit bears the same relation to the will that memory bears to the intellect. A mind that has frequently erected a certain class of representatives into objects of desire and emphasized the desire or craving by frequent efforts to realize them, has acquired a tendency to go on desiring in the same directions. A child wills to do a certain action; each repetition of that action requires a similar willing. In this way desire comes under the principle of habit, for every time the child wills the same desire, less and less effort is involved in the reproduction of the desired representation.

Weak Will.—A weak will is usually characterized by physical and mental indolence because of a lack of purpose and connected ideas. Weak wills are marked by spasmodic efforts, spasmodic attention, spasmodic interest, spasmodic action, because the essential elements—purpose, firmness, and perseverance—are wanting. Resolution is characterless if not accompanied by effort. Any one can resolve, but not every one can do what he resolves to do. A weak will is usually accompanied by moral weakness, because ideas of right and virtue are complex and are seen and felt only through long, concentrated mental efforts of dis-

crimination and choosing. The lack of concentration is the radical defect of a weak will.

Strong Will.—A strong will is marked by resolution and perseverance. Perseverance reveals the strength of the resolution and carries with it the feeling of satisfaction which always accompanies lawful and virtuous effort. A strong will is characterized by purpose, effort, and trains of associated ideas. Associated ideas tend to force effort and thus strengthen the will. A strong will is marked by the essentials, a strong personality, firmness, conviction, and courage. The man who is able to overcome his inclinations is said to possess great will-power. The man who is able to overcome his disinclinations and immediately carries out his desirable impulses also has great will-power. The foregoing points of difference describe the two types of will—weak wills and strong wills. A little thinking will show the youngest reader of this book that the will is to the physical, intellectual, and moral life of man what the governor is to the steam engine.

With the strong-willed man defeat is education, the first step toward the realization of an ideal. "Will," says Prof. James, "is attention to an ideal." The world needs men who believe in ideals, and who through effort try to realize them; the world needs men of conviction and purpose, men of

decision and prompt and resolute action. It is the strong-willed man that changes a thought into a deed, that compresses an ideal into a reality and sends it ringing through the centuries. What would be the condition of the highways of life if men of ideals, courage, and conviction did not drive over them occasionally? (Teacher will explain.)

Training of the Will.—“The phrase, ‘Training of Will,’ means the exercising and strengthening it by the various agencies of command, encouragement, and instruction.” Experience, as well as observation, proves that the power of self-direction is capable of cultivation. Experience and observation also prove that he who does not exercise his self-directing power soon degenerates into the mere creature of circumstance and is swept along like a vessel without a helmsman. Weak wills can be strengthened; balky wills encouraged; explosive wills may become deliberate. The deliberateness of an act is opposed to its impulsiveness. The importance of the teacher’s task in training the wills of his pupils cannot be overestimated. (Teacher will illustrate.)

Will becomes persevering only by concentration of effort. A persistent will is the only will that wins or that develops a strong character. Action must persist in one choice to accomplish anything. Truly has Emerson written: “The one prudence of life is con-

centration; the one evil, dissipation." In many ways the teacher can help the pupil to realize consciously this great truth. Every successful effort tends to make the next effort in the same direction easier and more definite, and this principle of habit not only encourages further effort in the same direction, but it develops firmness—an element in character. The old, old command, "If you do not at first succeed, try again," is still worthy of a place among schoolroom mottoes. (Teacher will illustrate.)

The self-activity of the pupil should be encouraged and fostered in every way possible by both parent and teacher. Lack of effort on the part of pupils is often the fault of teachers. The pupil should be encouraged to try again, not discouraged by being told. Mental effort if properly guided is always pleasurable. It is the teacher's duty to inspire, to encourage the pupil to rely upon himself; that success is a result achieved by self-effort. The teacher must guard against overtasks and inappropriate tasks. If the pupil is overtasked or assigned inappropriate tasks he will soon become discouraged, and his will will gradually grow weaker and weaker.

As the pupil advances in years he will see more and more clearly that education is self-education. Day by day the teacher can in many ways teach and illustrate this fact. Every recitation affords him an op-

portunity to train the pupil to rely on himself. Every recitation affords the tactful teacher an opportunity to show the weak-willed pupil the value as well as the result of self-help. Every class has one or more pupils who are ever ready and happy when called on to solve a problem, analyze a sentence, or explain a principle. Every recitation affords the purposeful teacher an opportunity to lead his class to see that education is a progressive self-development, and that culture is an acquisition, not a gift.

Self-Control.—Every one's experience asserts that feeling can be controlled by the will, and thus muscular movements, the visible manifestations of impulse and feeling, can be controlled. The real test of self-control is to hold the lower impulse in check by a higher one. The teacher's task is to assist the pupil to control his feelings and thus prevent unsightly and unpleasant exhibitions of passion. "Outwardly the will manifests itself in actions and deeds; inwardly it controls the thoughts." Will has to do with action, mental and physical. A man's will is the man. The will is the very core of one's personality; it is the will that decides and the decision describes what one really is. Man has the power of determining himself.

Psychologists agree that we can exercise motor control over our muscular activities. We can check that clenching of the fists, setting of the teeth, and general

tightening up of the muscles, which anger as representative tends to call forth, and by checking these physical signs of passion we chill the emotion and gain a victory through the will. We cannot control our emotions when death suddenly snatches from us a dear relative or friend, but we can exercise self-control over the expression of our grief. A young man may not be able to control the direction of his thoughts while being entertained at a parlor social, but he can control his habits of motion. He can sit erect, stand erect, and keep his hands from playing with his watch-chain or moustache.

To control is to exercise a directing, restraining, or governing influence over one's physical, intellectual, and moral life. To control one's emotions and actions is to guide them consciously in the light of previous experiences. That habits of self-control can be acquired is not longer doubted. The power to control all kinds of actions is a process of natural growth. It is the result of training, of long-continued, victorious willing. It is the office, privilege, and duty of the teacher to assist and encourage the pupil in the acquisition of habits of self-control.

Will—Ideals.—“Will is the source of ideals and of their realization.” As will is the mind's power of directing the self or of acting for self-chosen ends, it follows that will is the power of determining what the

self may become. That is, every one has the power to set up an ideal of what he would become and the approximate realization of the ideal depends only on himself. Man determines his place in society and in the world by setting up a high or a low ideal as a motive. Every rational human being wills an ideal self; and the ideal thus becomes the character builder, good or bad. Ideals are seldom realized, but the effort to realize them determines one's character. "A noble aim faithfully kept is as a noble deed." If one man chooses a low ideal and another chooses a high ideal, the sole answer to the question, why each chose as he did, is that one *willed* to become good, the other *willed* to become bad, or rather to remain bad. "This ideal of self-realization depends for its form upon the self, the will, and upon that alone."

Will coöperates with intellect, but it controls intellect; will derives its aim from feelings, but it controls the feelings. Will is thus seen to be essential *self*—the choosing, the determining element of mind. In other words, will is the self realizing itself. Will is the power of the soul that presents self to itself, the activity which creates and realizes its own ideals. Will is the core of personality, the distinguishing characteristic which marks the life of the doer from the life of the theorist or mere believer.

Self-Reliance.—"Trust thyself: every heart vi-

brates to that iron string." The pupil should be trained to rely on himself. Many teachers help too much. Much help weakens the pupil's will and trains him to look for help when he should not receive it. Telling a pupil what he can find out himself with reasonable effort is training him for a mere believer throughout life. Most indolent pupils can be changed into studious ones by persistent tact and exact demands on them by the teacher during every recitation. Spasmodic efforts on the part of the teacher will not redeem an indolent pupil, nor will spasmodic efforts on the part of the pupil establish the study habit. Methodical persistence yields success. Ideals depend on the will; realities depend on ideals; hence it is the teacher's duty to train and strengthen the will of his pupils and to cultivate in them a love for what is true, beautiful, and good. He should remember that will is attention to an ideal.

Without the quiet which characterizes good discipline, efficient instruction is impossible. Without the quiet which inclines the pupil to think and protects him in his effort, the school is a failure. We do not mean a graveyard quiet. We mean control. The teacher will remember that control is a faculty that deals with motor activities. Overtgovernment is a form of tyranny and is indisputable evidence of a weak teacher. Excessive discipline tends to reaction

when the restraint is removed. Too much authority robs the pupil of that independent growth which develops self-control. The child is more than a machine. He is a sensitive, sensible, and impulsive organism, a feeling, thinking reality.

It is as much a teacher's duty to discipline pupils as it is to teach them arithmetic and geography. A firm, uniform, corrective discipline is the most valuable form of instruction. The noisy, boisterous pupil should be trained to be quiet and temperate. The indolent pupil should be led by easy and exacting means to see himself as others see him. This the tactful and persevering teacher can do by requiring him to exhibit himself during every recitation. He should be given only such help as will help him to help himself. In his training the teacher should study the disposition of each pupil and prescribe the proper remedy. No two pupils are in all respects alike. Instruction should accustom the indolent pupil to diligence, for by diligence alone can he hope to develop the powers slumbering within him.

Artificial restraint, the restraint of lawful authority, is a valuable means in training the will. The commands of those in authority must be obeyed or the penalties attached to the disregard of them enforced. The first stage in the growth of a good character is the formation of the habit of obedience. To this end

the child must be uniformly obedient. Spasmodic obedience is not obedience. At best it is a compromise and encourages in the young a feeling of disrespect for authority. It is the teacher's duty to require, to compel if necessary, immediate and unmodified obedience. The pupil must obey without protest or hesitancy; if he does not, the penalty attached to disobedience should be inflicted.

As every conscious, physical act requires more or less attention, it is evident that a pupil should stand still or sit still during a recitation. A pupil cannot play with his pocket-knife or coat-tail without withdrawing somewhat of his attention from the subject of the lesson. Undivided and feeling attention stamps upon the mind lasting impressions. The teacher that does not become alarmed at seeing a number of inattentive pupils in the class is ignorant of the fundamental laws of mental development and indifferent in regard to the pupil's opportunity as well as to the responsibility of his position. A quiet school-room invites study. The mind likes quiet and likes to work. The only way to keep order is to check the first signs of disorder. Refer to the very first indication of disorder in a voice and manner that carry meaning to the pupil or class. The emphasis of voice and action that accompanies purpose is ever present in the work of the successful teacher.

Will—Character.—We inherit a nature, but acquire a character. Character is that quality or combination of qualities which distinguishes one man from another. Character is individuality, good or bad. Truly “Life is a quarry out of which we are to mould and chisel a character.” The golden age, thank God, is in the to-morrow, not the yesterday. The young should be led to see that life is opportunity. Usually the word character stands for good character. A good character means a moral and virtuous condition of mind, and such a disposition of the will as will subserve the ends of morality. The law for the will, therefore, is the *moral law*. Experience, as well as psychology, proves that man has an intellect capable of apprehending a general rule of conduct; that his Sensibility supplies ethical emotions; and that he possesses Will, the faculty of self-direction which enables him to observe this general rule. What, then, has will to do with character? Briefly stated the reply is, will is the character-builder, that man is what he wills he is or what he wills to become. Good character is the end of discipline and self-control, and to help in its formation is the most important part of the teacher’s work. Moral character consists in certain tendencies or habits acquired through the power and under the direction of will.

TEST QUESTIONS ON THE CHAPTER.

1. Define feeling as sensation and give two illustrations.
2. Define feeling as emotion and illustrate the definition.
3. Define egoistic emotion and show how it arises.
4. Define altruistic emotion and show how it arises.
5. Define intellectual emotion and show how it arises.
6. Define æsthetic emotion and show how it arises.
7. Define ethical emotion and show how it arises.
8. Show that the ego both feels and knows.
9. Show that knowing opposes feeling, and that feeling opposes knowing. Give two original illustrations.
10. What is meant by the phrase, subjective consciousness?
11. What is meant by the phrase, objective consciousness?
12. Define will; then paraphrase the definition.
13. Define non-voluntary action. Give three illustrations.
14. Define voluntary action. Give three illustrations.
15. How many kinds of non-voluntary actions are there?
16. Define and illustrate each form of non-voluntary action.
17. What is meant by the phrase, voluntary action?
18. What factors are involved in a deliberate action?
19. What is meant by the phrase, elements of willing?
20. Define desire, deliberation, choice, volition.
21. State concisely the relation between will and attention.
22. What is meant by the phrase, weak will? Illustrate.
23. What is meant by the phrase, strong will? Illustrate.
24. What is meant by the term, self-control?
25. What is meant by the phrase, training of the will?
26. In what way is the will responsible for one's ideals?
27. In what way is the will the character-builder?

CHAPTER X

HABIT

Almost every one has an idea of what the word *habit* means, and how a habit is acquired. Few, perhaps, have a correct idea of the strength of habit. Habits are acquired tendencies; a good habit is a priceless acquisition; a bad habit is a personal reflection. Habit is not instinct. Habit is acquired; instinct is bestowed. Habit has a definite beginning; instinct has no such beginning. Habit means action; it means doing something; and as one is known by his actions, habit is a character builder. As habit is acquired, every rational human being is responsible for the kind of habits he acquires and practices.

There are as many different kinds of habits as there are physical and mental functions. Habits are formed by repetition, and not only does every animate thing in nature seem to form habits, but the effects of repetition may also be found in inanimate things. Every musician knows the advantage of having string, reed, and brass instruments "broken in" by an artist. Let a man do a certain thing once in a certain way and it is easier for him to do it that way a second

time. If a nerve once carry a certain kind of impression inward it will be easier for a similar impression to follow the same path over that nerve than to travel along a new nerve route. Similarly, if the impulse of a thought be carried outward along certain nerves and expresses itself in the action of certain organs or muscles, these same nerves, organs, and muscles will more easily respond to similar thought impulses a second time than will other nerves, muscles, and organs. The laws of habit enslave the masses. What custom wills they do.

“To follow foolish precedents, and wink
With both eyes, is easier than to think.”

Watch the workings of a river in forming its channel; it will be seen that if left to itself it invariably takes the course which offers the least resistance. If checked and directed, however, it may be made to enter channels where, if unrestrained, it would not run. Similarly in man, thought impulses, if uninterrupted, will form paths in the brain and nerves and become habitual in expression in outward actions. But if controlled and directed by the will such thought impulses may be made to open up new channels in the nerves, or change those already formed and find outward expression in different forms of action.

We will now examine some formal definitions of habit: 1. “Habit is a tendency toward an action or

condition which by repetition has become spontaneous." 2. "Habit is a fixed tendency to think, feel or act in a particular way under special circumstances." 3. "That condition of mind or body which is manifested in the tendency to unconscious repetition of acts or states is known as a habit."

Law of Habit.—Every time we perform an action, mental or physical, we have a stronger tendency to perform it than before and greater facility in performing it. A few simple illustrations will verify the law. The child, at first able to walk only a step or two with great difficulty; the bicyclist, at first compelled to give his entire attention to the wheel; the learner on the piano, at first slowly picking out the notes; the typewriter, at first slowly picking out the lettered keys; these all soon acquire skill by repeating the same movements. A lesson gone over with care many times can be repeated without the book, because the mind has acquired the habit of creating certain states of consciousness in a given order; hence the repetition of the lesson becomes progressively easy. The curious gestures, ways of standing, ways of holding the hands, attitudes in general, and modes of speech are due to the law of habit. Experience proves that when an action, mental or physical, becomes habit, the attention required to perform it is practically zero. That is, each repetition of an

action demands a decreasing effort of the will. This every day fact should ever be present in all the teacher does or permits to be done in the schoolroom. “How use breeds habit in a man.”

Habits of motion are confined exclusively to the physical system and are formed, as are all other habits, by repetition. A habit of motion may be developed in any muscle or group of muscles, consciously or unconsciously. Habits of motion are observed in such things as walking, biting the nails, scratching the head, facial expression, winking, smiling, the technique of piano playing, sewing, knitting, violin playing, writing, and so on. Some of these habits are formed by the repetition of a conscious effort, while others are formed unconsciously by imitation or by accident. To dislodge an undesirable habit of motion another habit must be formed to take its place. The unsightly habit must not be permitted to return even occasionally. In regard to this important point Prof. James says: “Never suffer an exception to occur till the new habit is securely rooted in your life.” (Teacher will illustrate.)

Nothing is better known than the fact that bodily movements become easier by repetition. The series of movements in the practice of any occupation requiring dexterity, as playing a musical instrument, soon follow in order with ease and regularity. The

theory is that every bodily movement creates a *tendency* in the structure of the reflex nerve-centers to repeat the same movement or series of movements. Every physical act becomes tendency and is more easily performed the second time than it was at first, and the oftener it is repeated the less conscious attention is required. Dewey says: "The habitual act of walking thus occurs automatically and mechanically. By saying that it is mechanical we mean that there exists little consciousness of the process involved, and of the relation of the means, the various muscular adjustments to the end—locomotion. The various steps of the process follow each other as unconsciously as the motions of a loom in weaving."

As the body is the servant of the mind, it follows that the laws which govern bodily movements and states govern mental movements and states. As the mind directs the body while the body is acquiring skill or habit, the mind itself acquires habit. Mental images of objects frequently seen are readily recalled; the indulgence of a train of thought, whether of pleasant or unpleasant things, tends to repeat itself and to grow into habit. That is, every mental act becomes a tendency and is easier to perform the second time than it was at first, and if often repeated becomes a habit. That habit develops all the active operations is seen in every-day life. This fact is suf-

ficient to keep the teacher constantly on the alert to prevent, if possible, the first improper or imprudent act on the part of his pupil. The repetition of an action is not necessary to explain the beginning of habit. The teacher will remember that habit is *tendency*, and that it urges and facilitates action.

Every member of the body which is used grows strong. The blacksmith that swings his hammer every day has stronger arms than the dancing-master or sprinter, who mostly exercises his feet. The hands of the working girl are larger than those of the society belle. The day laborer, who lifts heavy burdens, can bear greater pressure than the society man who spends his time in admiring himself and in spending his father's millions. Our powers acquire facility and strength only by exercise. This is every one's experience. Exercise not only strengthens the member used, it develops *tendency*. Repetition creates desire or taste. Power is the result of doing. Muscle is developed by using muscle; thought power, by thinking; moral habits are inspired and fixed by doing moral deeds.

“The power of habit depends on the frequency of the repetitions of the same act or on a prolongation of the same impression.” This fact is an every-day experience, and suggests much to the teacher who believes that the pupil goes to school to be trained, that

knowledge-getting is not the limit of education. In a word, habit enfeebles consciousness and passive impressions, and develops all the active operations. That habit enfeebles consciousness is seen in the fact that a phenomenon that is often repeated and is habitual to us becomes insensible. The chemist lives among foul odors without smelling them.

“ Small habits well pursued betimes
May reach the dignity of crimes.”

SPECIAL SCHOOL HABITS.

The limit set for this book permits only a brief reference to the habits which should be acquired by the pupil during school life, for they constitute an important part of an education. These are: The Habit of Punctuality; The Habit of Obedience; The Habit of Attention; Moral Habits.

Habit—Punctuality.—The habit of being punctual is the result of willing. Every tendency, every condition, mental, moral, and physical, is a growth. Every act, mental and physical, leaves a trace behind it which constitutes a disposition to perform the same kind of act again and in the same way. Were this not so we would never acquire skill in bodily action or freedom and facility in expressing thought. Punctuality becomes a habit through the will. Good habits cannot be formed without an effort, without a

deliberate purpose to form them, and without a constant struggle to dislodge the opposing bad habits. The habit of being punctual is developed and fixed in only one way—by being punctual on all occasions. Page says: “This, as a habit, is essential to the teacher. He should be punctual in everything. He should always be present at or before the time for opening the school. A teacher who goes late to school once a week or once a month, can not enforce the punctual attendance of his pupils.” There can be no excuse for a tardy teacher.

Punctuality is more than a valuable business habit; it is a virtue. He who is habitually tardy takes from others what does not belong to him, *their time*. The tardy pupil disturbs the entire school, consumes the time of others, and is very expensive. No one can enter a schoolroom after the work of the school has begun without disturbing every one present. There would be as many tardy pupils at 9:30 as at 9:00. Experiment has conclusively proved that the time set for a performance to begin has little or nothing to do with the punctuality of the audience. *Tardiness is an expensive and an annoying habit.*

“Ill habits gather by unseen degrees;
As brooks make rivers, rivers run to seas.”

Habit—Obedience.—Obedience is a habit which is formed by being uniformly obedient. The child

should obey the teacher without explanation or argument. The pupil should respect authority without asking the reason for the command. To permit a pupil to question the right of the teacher to require immediate and cheerful obedience on the part of his pupils is to question his right to govern and teach. To permit a pupil to discuss the propriety or impropriety of a teacher's command would soon destroy the pupil's respect for the teacher and the school. The teacher, next to the mother, is responsible for the pupil's ideals, habits, and character.

"No change in childhood's early day,
No storm that raged, no thought that ran,
But leaves a track upon the clay,
Which slowly hardens into man."

Habit—Attention.—The habit of giving voluntary attention, the most valuable of mental habits, is acquired in only one way, through long and persistent efforts of the *will*. Experience proves that in a limited way it is possible to control our mental activity; we can determine its course, its steadiness, and its continuance on the same track. In other words, we can under normal conditions determine our mental trend at any conscious moment. Experience also proves that voluntary attention is increased by certain physical attitudes. A firm erect position tends to increase the power of the mind to focus itself on

the object presented to it. An erect position of the body and an alert eye are evidences of the activity of the mind, visible evidences of the state of the soul. On the other hand, inattention is shown by a careless, weary position of the body, a lifeless wandering gaze of the eye, and a general "don't care" expression.

A good method commands the attention of the class as a class. In order to secure and hold the attention of the individual members of the class the teacher must be ever awake and the members of the class on the alert. The attention, not only of the reciting pupil, but of every pupil in the class, must be secured and retained; hence a teacher should not spend much time with one pupil. If much time is spent with one pupil the other members of the class will become restless and inattentive. If the laggard will not do the work of the class without undue attention on the part of the teacher, put him in a lower class. The sooner the teacher stops begging him to get his lesson the sooner he will begin to study.

Moral Habits.—To the teacher is committed a trust of the most sacred importance. He is called on to assist parents in forming the characters of those who must succeed us in the home and state. The most impressible period of child life is spent in the primary grades; hence only those adapted by nature and especially qualified by education should be em-

ployed to teach in those grades. Education is the extension of an influence on the soul of the pupil. This influence may be good or bad, inspiring or depressing, which, depends on the fitness, natural and acquired, of the teacher. Thus the personality of the teacher is the most effective element in the moral training of the pupil.

The trustworthiness of character depends on the strength of the acquired habits. Moral habits show their strength and value in the completeness and promptness with which they *force* right action. "Character constitutes the only reservoir of energy which may be drawn upon to bring about the end willed." But character is the product of will. Will chooses, will executes, will thus determines character, for character is a growth. In other words, a good character is the end of discipline, and to assist the pupil in its formation is the most important part of a teacher's duty.

Moral education is more than a mere belief in certain doctrines; it has to do with conduct. A veneer of moral purpose is not sufficient for the schoolroom. The formal recitation of moral maxims will no more develop moral character than the mere recitation of the rules of syntax will yield a command of good English. The teacher must be what he wishes his pupils to become. Example is the great preacher as

well as the great teacher. The well-regulated school teaches morality, for it trains the pupil to habits of industry. He must prepare his lessons; he must recite them; he must exhibit himself. He thus becomes accustomed to regular employment. *Industry is an element in moral character.*

The school teaches morality, for it trains the pupil to habits of regularity. He must be regular in his attendance at school. By regularity he is taught to recognize the value of opportunity and the rights of others. *Regularity is an element in moral character.*

The school teaches morality, for it trains the pupil to habits of promptness. He must act promptly. This compels him to be prepared to act. He must do the right thing at the right time. This compels him to give attention, to be ever on the alert. *Promptness is an element in moral character.*

The school teaches morality, for it trains the pupil to habits of respect and obedience to those in legal authority. He must comply with the regulations of the school. *Obedience to lawful authority is an element in moral character.*

The school teaches morality, for it trains the pupil to habits of self-control. He is compelled to guard his tongue and temper; he is compelled to recognize the rights and feelings of his classmates. *Self-control is an element in moral character.*

The school teaches morality, for it seeks to dislodge the improper habits of the pupil and to establish proper ones. In the conduct of life proper habits count for more than moral maxims, for habit is a living maxim. It is as easy to revise one's maxims as it is to change the title of a book. To dislodge a habit is to reach the substance of life, for life is but a tissue of habits. The school teaches morality, for training habituates the pupil to a fixed order of life, to regulated order, to regulated activity. In this manner the pupil acquires moral convictions, not by means of doctrines, but by means of life itself and the personal influence of the teacher.

Finally, the school teaches morality, for the subjects taught compel the pupil to think, to feel. Those who claim that the public school is a Godless institution because some form of ceremonial sectarianism does not constitute a part of the daily programme, have given the subject little or no thought. The charge made by the anti-public school people, that the public schools of America do not teach morality because they do not recognize some form of sectarian doctrine, is not true. A vast majority of our teachers exemplify worthy aims of life by precept and example. The ideal in every department of life is still the product of the imagination.

Moral training, like mental training, is chiefly the

result of association and personal example. Every properly qualified and earnest teacher is conscious that he can and does exercise much influence over his pupils. To be successful the teacher must be what he seems to be. He must teach by example habits of truthfulness, of obedience, of promptness, of industry, and of respect for the rights of others. Coleridge has very beautifully described what the teacher must be, if he would lead his pupils to build high ideals of character:

“O'er wayward childhood would'st thou hold firm rule,
And sun thee in the light of happy faces?
Love, Hope, and Patience — these must be thy graces;
And in thine own heart let them first keep school.”

Habit is its own worst enemy, because old habits oppose the formation of new ones. This is why it is difficult to form new habits. The formation of a new habit usually involves the destruction of an old one. The growth of habit is much easier in early life than in later years, because early life is plastic, easily trained, and because there is less opposition from habits already formed. It is believed by those who have given the subject much attention that few people change their habits after twenty. The boor at that age will always have boorish peculiarities. It is well known that the strength of a habit depends on its age and the frequency of its recurrence.

Habit is the reflective, mechanical, automatic activity which succeeds voluntary activity. Like instinct, it has sureness and infallibility. Habit influences and in a large measure controls all our state of consciousness. It enables us to repeat without effort acts which at first were painful, tedious, and laborious. An act which has been often renewed becomes an almost unconscious act. In writing we have little consciousness of the letters we form; in playing a piece on the piano we do not take account of the movements we execute. Habits grow in pairs. Dirt is usually accompanied by an inclination towards crime. Cleanliness creates a desire for order and regularity in general. Physical cleanliness exercises a good influence on mental life. (Teacher will show that habits grow in pairs.)

Habit Saves Power.—A movement often repeated becomes automatic; that is, the act is performed, if not unconsciously, at least subconsciously. A boy learning to ride a bicycle illustrates the value of repetition and what is meant by subconscious attention. At first the management of the machine requires all his attention. In a short time the boy can spin along talking to or listening to his companion, and paying no special attention to the machine, which he is guiding skilfully. The same mental and physical acts required to guide the machine have been so often

repeated together that a habit has been formed and only subconscious attention is required. As with the boy learning to ride a bicycle, so it is with all learning to play the piano, the violin, or to run a sewing machine, or a typewriter. Habit liberates attention, and thus saves power.

Habit Saves Time.—An analysis of the foregoing illustration shows that facility in action is the result of repetition of the same act in the same manner. At first the boy was compelled in order to save himself from a fall to give to the management of the bicycle concentrated, voluntary attention. Practice permitted him to transfer the management of the machine from the focus of consciousness to the margin of consciousness, and to divide his attention between the management of the machine and the conversation of his companion. What is true with regard to this illustration is true of all other mechanical movements. The body is a machine; the mind is the manager. Further study of the given example shows that as the boy acquired skill in the management of the bicycle he gained speed; that is, he saved time.

Habit—Acquisition.—Habit aids intellectual acquisition, because the growth of the power of attention, of close observation, of forming judicial judgments is due to habit. Many people cannot follow a train of thought because they have not formed the

habit of giving attention. Experience shows that habit tends to become permanent and to exclude the formation of other habits. "Thus habit forms character, and character determines destiny." Most human actions are acquired by practice. The aim of education is the control of all inborn and acquired actions by rational and sensible motives. Education is little more than a formation of correct habits.

Habit is acquisition; that is, it is acquired by repetition. The older we get the more difficult the acquisition. This fact is partly due to conflicting habits. The older habit opposes the new one; hence to learn a new habit means to unlearn an old one also. In the case of the child who has held his pen incorrectly a year or so the fixed habit conflicts with the effort to hold it correctly. This is due to the physiological fact that plasticity is connected with the entire character of the tissues and their rate of destruction and repair. As tissues are more easily destroyed and repaired in early than in later life, it follows that bad habits are more easily dislodged and good ones substituted in early than in later life. With age the organs and tissues reach their full growth, and an actual physical consolidation takes place.

Habit—Language.—The correct use of the mother tongue is not the gift of grammar; it is an acquired habit. Correct language must be used until it be-

comes a habit. Incorrect and indirect statements should be persistently fought until the habit of using them is dislodged, and the habit of using correct and direct statements is established. The rules of grammar can only aid in acquiring a correct use of our mother tongue. Once it was believed that the cultivation of language and the study of grammar should begin together. Fortunately that belief is no longer held by many teachers. The child should be trained to speak correctly from the day he utters his first complete sentence. During the entire life there is no time when one's language may not be cultivated and improved. There is a time, however, when the study of grammar has little or no value. The rules of grammar are hindrances until the pupil can comprehend their application.

It is unfortunate for both pupil and teacher that the child is not trained in the home to use correct language. A large majority of pupils enter school habituated to incorrect forms of speech. The child learns the forms of language used by his associates. If his associates use correct forms of speech he will unconsciously acquire the habit of using language correctly. On the other hand, if his associates use incorrect forms he will unconsciously use the same forms of expression. Throughout life example is the great teacher. One good example is worth more

than one hundred moral precepts. Truly has Lowell written: "An illustration is worth more than any amount of discourse."

Importance of Habit.—Reid says: "As without instinct the infant could not live to become a man, so without habit man would remain an infant through life, and would be as helpless, as unhandy, as speechless, and as much a child in understanding at three-score as at three." Habit gives definiteness to life, mental and physical. It is the architect that builds the feeble and indefinite movements and purposes of the child into the definite movements and purposes of the man. It is the means whereby the child realizes his power to become skillful and sure. The law of habit tends to make us whatever we would become. Thus nature aids purposes. Could the young realize how soon they will become bundles of habit they would give more attention to their daily conduct.

Good habits are valuable, not only because they save time and power, but because they make right conduct easy and certain. Good habits fix our behavior and give us standing. Habit makes it possible for one person to know another. Good habits are the surest bondsmen. The man that is habituated to right conduct has no struggle to decide between right and wrong, but immediately does the right thing. The sense of right conduct must become a constant

companion before one can claim a good character or be trusted by others. The nature of habit is uniform action. The habit of telling the truth, the habit of observing the usual proprieties of refined society, the habit of close observation and discrimination, the habit of making judicious decisions, the habit of speaking no evil, the habit of observing the golden rule; these form a practical and reliable education.

Compayré says: "It is not exaggeration to attribute to habit a preponderant part in human life." It is habit which consolidates the results of our efforts, and spares us from making a constant appeal to the costly and laborious exercise of our will. Without it, everything must be commenced over and over again; by means of it we profit by all that we have done. Through habit we doubtless tend to become automata, but intelligent automata who do over again without trouble only what we have once willed to do. It is habit which fixes the perpetual *becoming* of our existence, which arrests time that nothing else arrests. By means of habit the past in the living being is not abolished. By it the past accumulates and is included in the present. It holds the past, and still retains it in its possession under this concise form; it has augmented its substance, and has assimilated it to its own nature. But habit naturally keeps alive the evil as well as the good. It is habit which makes

the unity of our life and adds the present minute to all those which have preceded. According to the use which we have made of our activity in the past, shall we be determined in the present and in the future to actions which are good or bad. "Habit is a servitude, since it makes us the slaves of our past; but it has depended upon ourselves whether this past shall lead us on to virtue, to knowledge, and to truth."

Formation of Habit.—The most important of all tasks for the will is the formation of good habits. All good habits are formed and maintained under the effort of will. The formation of habit demands plasticity. Growth is much easier with children than with adults. Recent investigation has done much practical good in calling attention to the plasticity of nervous matter in early life, and in showing that the longer one defers the formation of a desired habit, the harder will be the struggle required to form it. It is much easier to bend the twig than the stubborn stem. In fact it is often impossible to bend the stem. Few in old age can bring to bear will-power sufficient to dislodge an old habit. Good habits constitute a good character. Habit is self. Habits measure the value of life. One is free only to the extent that he is master of himself, only to the extent that he has trained his will. Horace Mann had no doubt tested the strength of habit when he

wrote the following universal truth: "Habit is a cable. We weave a thread of it every day, and at last we cannot break it." (The teacher will give two examples of the strength of habit, one of a good habit, one of a bad habit.)

As habit is acquired every one is responsible for the kind of habits he acquires. A habit can not be formed without the consent of the one that acquires it. A habit cannot be formed if one persistently refuses to perform the given act. However, a habit may be formed without willing; that is, an act may become habitual without the intention of forming a habit, yet the one who permits it to become habit is responsible, for he could have prevented its existence. The habit of getting drunk, the habit of forming hasty judgments, the habit of believing improbable statements without questioning them, the habit of tattling, are specimens of habits formed without intention, without conscious *willing*. Fortunately there is a provision in our nature which enables us to destroy a bad habit. An act can not take place except under certain conditions. We can refuse to offer the conditions, and thus destroy the habit.

Habit—Thinking.—Spencer says: "When a man's knowledge is not in order, the more of it he has the greater will be his confusion of thought. When the facts are not organized into faculty, the

greater the mass of them the more will the mind stagger along under its burden, hampered instead of helped by its acquisitions.’’ This quotation is a severe denunciation of the cramming process. It is also a strong endorsement of the value of habit in the acquisition of knowledge. As habit saves time and power in the performance of physical acts, we may logically infer that it saves time and power in the intellectual world. Knowledge can not be gained without correct habits of thinking. Knowing is impossible without thinking, and correct thinking is impossible until the thinking process is governed by the law of the habit. Education is not so much reading, or so many facts; it is the power to think correctly.

Habit—Feeling.—The value of habit is clearly expressed in the well-established law of increasing automatism: ‘‘Habit diminishes feeling and increases activity.’’ Learning to ride a bicycle or to operate a machine of any kind illustrates the truth expressed in this law. Every repetition of an action renders the action less difficult to perform and requires less attention to perform it. As feeling depends on attention, it follows logically that as we decrease the amount of attention required to perform an act, we decrease the feeling accompanying the action. In fact only little feeling accompanies an action which has become a habit by repetition. Intense feeling belongs only to

new experiences. Familiarity dulls feeling. This truth is illustrated in the performance of the routine affairs of every-day life, also in the effect of recurring imposing ceremonies and forms.

"The tendency of feeling to disappear from habitual action is well known." In time the surgeon becomes less open to emotional sympathy with pain while he is performing an operation; the explorer, to the sensations incident to exposure. The drink habit is a strong illustration of the mental truth expressed in the law of increasing automatism. At first a small quantity of alcohol produces the desired exhilarating effect. But as the system becomes accustomed to the use of the intoxicant the quantity must be gradually increased to produce the desired state of feeling. While feeling uniformly decreases as an action becomes habit, the activity of the two other phases of mind uniformly increases. The consciousness liberated in the decrease of feeling in habitual action is used in other directions. Loss of consciousness in a given phase of mind is gain in the other phases. There is no absolute loss. Nature is the great economist. (Teacher will illustrate this fact.)

Moral habits are distinguished from intellectual habits by the presence of two hostile powers, one to be gradually raised into the ascendant over the other. In the struggle to fix the habit of right conduct it is

important that right should win in every battle. Every victory on the wrong side undoes the effect of many victories on the right side. Every relapse weakens the will and makes victory more doubtful. A bad habit can be dislodged only by a series of uninterrupted successes of the opposing impulse. The opposing impulse must be repeated until it is strong enough to cope with its opposition under all circumstances. (Teacher will illustrate.)

Man is little more than habit, good or bad. Bad habits injure as much as good ones benefit. Education should therefore combine the positive acquirement of good habits and the negative work of not practicing bad ones. Every successful effort of the will to prevent the repetition of an improper habit tends to destroy the tendency to repeat the bad habit. Bad habits are destroyed only through the victories of the will. In a methodical life an action becomes almost automatic, and thus saves power and time. This is why habit has been described as instinctive action. A perfect habit is acquired instinct—a sort of second nature. The laws of habit are of prime importance in education, for the principal aim of school training is to induce certain habits of body and mind in the pupil.

TEST QUESTIONS ON THE CHAPTER.

1. Define habit and show that you know what it is.
2. How is habit usually formed? Illustrate.
3. Show that inanimate things seem to have habits.
4. State the law of habit, and give original illustrations.
5. What is meant by habits of motion? Give illustrations.
6. Give three illustrations of habits of motion observed among your classmates.
7. How can a bad habit be dislodged? Illustrate.
8. What is the principal obstacle to be overcome in the formation of a new habit? Give two illustrations.
9. Habits grow in pairs. Show that this statement is true.
10. Name some ways that a well conducted school teaches morality.
11. Show that habit saves power. Give two illustrations.
12. Show that habit saves time. Give two illustrations.
13. Show that habit is an acquisition by giving illustrations.
14. Give three original illustrations in proof of the statement "Practice makes perfect."
15. Why is it more difficult to form a new habit at twenty-five than it is at ten?
16. What constitutes a good character.
17. Show that habit decreases feeling and increases activity.
18. Why is the recitation hour the heart of school life?
19. Why does competence on the part of the teacher tend to arouse interest and secure attention on the part of the pupils?
20. Show that habit aids intellectual acquisition.
21. Why is contentment a form of death?

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